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Listerella Infection in Fowls

Preliminary Note on its Occurrence in East Anglia

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Bacteria of the Listerella group have been isolated from human beings and animals in different parts of the world. Murray (1926) recovered the organism from rabbits; Harvey Pirie (1927) found Listerella in the gerbille (*Totera lobengulae*) in South Africa; from sheep and cattle affected with encephalitis similar bacilli were isolated by Gill (1933), Jones and Little (1934) and by Ten Broeck (quoted by Seastone, 1935); from human beings showing meningeal affections, Listerella have been isolated by Schultz (1934) and Burn (1934, 1935). The only record of the occurrence of organisms of this group in poultry is the article by Seastone (1935).

During the past twelve months we have recovered organisms of the Listerella group from a series of fowls on four occasions. Briefly, the histories of the fowls concerned are as follows:—

(*a*) Two adult fowls were involved and in both cases death occurred suddenly.

(*b*) One hundred and twenty out of 200 Leghorn pullets died during a period of three months. In addition to the presence of organisms of the Listerella group, *B. pullorum* was recovered from some of the pullets and there was also a heavy infestation of tapeworms (*Davainea proglottina*).

(*c*) Four hundred pullets and 24 stock cockerels comprised the affected unit. The losses were 190 pullets and one cockerel. In several of the pullets from which Listerella were recovered lesions of fowl paralysis (neurolymphomatosis) were also present.

(*d*) Eight out of 24 young poultry died.

The following general features were observed. The adult fowls died suddenly, while in young stock there was gradual wasting. On *post-mortem* examination there was a general oedematous condition of the carcase and the abdominal cavity and pericardial sac usually contained much excess fluid. The occurrence of areas of necrosis in the liver was commonly found. In one case (a cockerel) there was extensive necrosis of the myocardium. Listerella was recovered from the liver of every bird examined (25 in all) and from the heart blood in seven cases.

BACTERIOLOGY.—Seven strains were examined in detail. All were found to be identical in the following respects. The organism occurs as a short, Gram-positive rod, 1–3μ × 0·5μ, but long thread-like forms extending up to 20μ are not uncommon in cultures on solid media. It is not acid-fast and does not form spores. In glucose broth cultures at 37° C. feeble motility is observed. On agar, dewdrop-like, transparent colonies develop and attain a size of 0·5 mm. in 24 hours. In broth a diffuse turbidity is found as growth occurs, a more rapid and profuse growth being obtained if glucose, serum or blood is added to the medium. On blood agar, haemolysis is observed after 18 hours. Growth occurs on McConkey plates, though the colonies seldom reach a size of 0·5 mm. after 72 hours incubation. Gelatin is not liquified though growth occurs as minute colonies along the line of the stab. The organism appears to grow well under anaerobic conditions.

The following "sugars" are fermented without the formation of gas: glucose, maltose, laevulose, galactose, rhamnose, lactose, salacin, soluble starch, dextrin and glycerol. Arabinose, xylose, raffinose, mannitol, dulcitol, inositol and inulin are not attacked. Methylene blue milk and litmus milk are almost completely decolourised in 24 hours but the normal colour returns after four to five days incubation. No clot is produced.

The organisms are pathogenic for fowls, mice and rabbits, but not for pigeons.

Further work on the strains is in progress, especially regarding their relationship to strains recovered by other workers. A further study of their pathogenicity is also being made with a view to ascertaining the part played by the organism in the cause of mortality in poultry. It is hoped to publish a detailed account of this work in the near future.

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PRESERVATION OF BRITISH BIRDS

At a meeting of the Association of Bird Watchers and Wardens details were given of proposed legislation designed to curb the activities of egg collectors. The Association points out that since the beginning of the present century, largely because of egg collectors, we have lost three of our birds as breeding species—the white-tailed eagle, the osprey, and the Kentish plover—and unless immediate action is taken there is a danger of losing the kite, the hobby, the dotterel, the crested tit, and several other birds. The Association has compiled a list of 226 "dangerous" collectors—those who collect the eggs of birds protected by law—who manage to evade the existing Bird Protection Act, an Act which the Association contends is largely ineffectual.

The proposed Act, which was explained by Mr. H. Gallienne Lemmon, seeks to give the police the right to search egg collectors who are reasonably suspected of having been unlawfully in search of the eggs of protected birds. All eggs and gear found upon convicted persons would be confiscated. The Act is to be known as the Wild Birds Protection Act, 1938, and is to be construed with the Wild Birds Protection Acts, 1880-1908.

The Chairman, Dr. P. H. Manson-Bahr, said that the Association was doing useful if not spectacular work. Their success must depend upon the ordinary man in the street. In the matter of foot-and-mouth disease it had been suggested that the Association could do a service of immense importance if they could collect evidence as to the connection between the disease and the abnormal migration of starlings from Central Europe. It had also been suggested that a central consultative body of ornithologists might be set up to consider the question of new legislation. As the Prime Minister was an ornithologist they might hope for a great deal of sympathy.

Mr. G. Dent outlined a scheme for "nest adoption" in an effort to save the rarer raptores. He said that those birds were in great danger to-day not only from egg collectors but because of their conflict with those who wished to preserve game. The suggested methods were legislation, propaganda, and rewards to gamekeepers on whose land the young of those birds were successfully reared. The birds he had in mind were the golden eagle, the three varieties of the harrier, the hobby, the merlin, and, possibly, the peregrine. A sum of £5 was suggested as the cost of "adopting" a nest, and a number of members, in addition to the Chairman and the Association itself, volunteered to "adopt" nests. A sub-committee was formed to deal with this matter.

Some Observations on Epiphyseal Union of Long Bones in Young Egyptian Cattle and its Importance as an Aid in the Estimation of Age

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The theory of epiphyseal union in the human is too well known to require any discussion, and on comparatively similar lines, there is no reason why the same should not be utilised for the estimation of the age of the living animal. We know from our experience in estimating the age in human beings that the development of teeth helps us to a certain age, beyond which there is nothing to rely upon except the union of the epiphysis in long bones, which we are utilising in our every-day practice of estimating the age.

We started with heifers of the Faculty of Agriculture as they were the only available animals of graduating ages, and in spite of the interposition of the soft tissues between the X-ray tube and the film we were able to obtain some data which I hope will be of service to those interested in the subject of estimating the age of Egyptian cattle.

The estimation of the age of an animal is sometimes of importance (1) for purposes of identification, (2) in cases where it has been suspected that "faking" has been practised in connection with the age of the animal, and (3) in relation to different breeding purposes of either fattening, milk production, or work. Although the indication of age in cattle by the teeth is a sound one to a full mouth, yet one can safely say that the date of the union of the epiphysis will at least add to the accuracy of the indication of age even as early as one year old.

On perusing the available literature of "epiphyseal union" in animals very little was found written on it. Not only that, but what is given in one reference differs materially from that given in another, a point which could be explained by the possibility of different writers working on different breeds. An illustration of this, as regards dentition of different breeds, is shown in the following table, relating to American cattle under favourable conditions (Sisson) and Egyptian cattle (M. Askar Bey) :—

	S. Sisson.	Askar Bey.
2nd incisor (controls)	2 years—2 years 6 months	2 years 6 months—3 years.
3rd incisor (laterals)	3 years	3 years 6 months—4 years.
4th incisor (corners)	3 years 6 months—4 years	4 years 3 months—4 years 6 months.

TABLE OF COMPARISON.

Name of Bone	Our Collection.	Sisson's.
Humerus (Dist.)	Union towards the middle of 2nd year or a little later	1½ years.
Radius (Prox.)	Union about the end of 2nd year	1½ years.
Radius (Dist.)	Till towards the end of 2nd year was not united	3½ years.
Ulna (Prox.)	Union towards the middle of 4th year	3½ years.
Ulna (Dist.)	Till towards the end of the 2nd year was not yet united	Unites with radius before birth.
Metacarpals	Union is generally above 2 years: suspicion of union occurs towards the middle of 2nd year.	Middle of 2nd year.
Digits—		
1st	Union towards end of 1st year	1 year.
2nd	Union earlier, about the 9th month	9–10 months.
Femur (Dist.)	Union generally takes place towards the end of the 3rd year	3½ years.
Tibia—		
(Prox.)	Union takes place towards the end of 3rd year	3½ years.
(Dist.)	Union towards the end of 2nd year	2 years.
Os Calcis	Union was not detected before the end of the 3rd year	3 years.
Union of radius and ulna	Occurs towards the end of the 2nd year, and seems to start below the groove rather than above it.	

From the above tables we note that:—

(1) The union of the distal end of the humerus took place towards the middle of the second year or a little later. (*N.B.*—The time of union of proximal end of this bone could not be determined, due to the thick mass of muscles around it, which completely blurred the film.)

(2) The union of the proximal end of the radius took place towards the end of the second year. The distal end of the radius and ulna was not united at the end of the second year (and was not determined after that).

(3) The union of the metacarpals generally took place beyond the second year, though suspicion of union was noticed earlier (middle of second year).

(4) The epiphysis of the first and second digits unites towards the beginning of the second year.

(5) The distal end of the femur unites with the shaft towards the end of the third year together with the proximal end of the tibia. With regard to the latter bone, only one amongst 22 cases showed absence of union at three years and two months.

(6) The distal end of the tibia unites generally towards the end of the second year.

(7) The union of the radius and ulna occurs towards the end of the second year and seems to start below the groove a little earlier than above it.

The table on page 1537 will show that our figures, as taken from the radiography of living animals, agree, more or less, with those of S. Sisson who apparently got his figures from the examination of actual bones from dead bodies.

COMMENTS

From the data given we note that:—

(1) The ends of bones entering into the formation of the elbows (humero-radial) joint unite generally at about the same period, *i.e.*, one-and-a-half to two years (upper end of ulna only being an exception).

(2) This union takes place earlier than in both the lower extremities of both the radius and the ulna, and possibly also the proximal and of the humerus, the above-mentioned period being exceeded.

(3) With regard to union of epiphysis of the bones entering into the formation of the knee joint, this occurs rather late, *i.e.*, towards the end of the third year, and later than those further removed from this joint, *e.g.*, the lower end of the tibia, which unites towards the end of the second year.

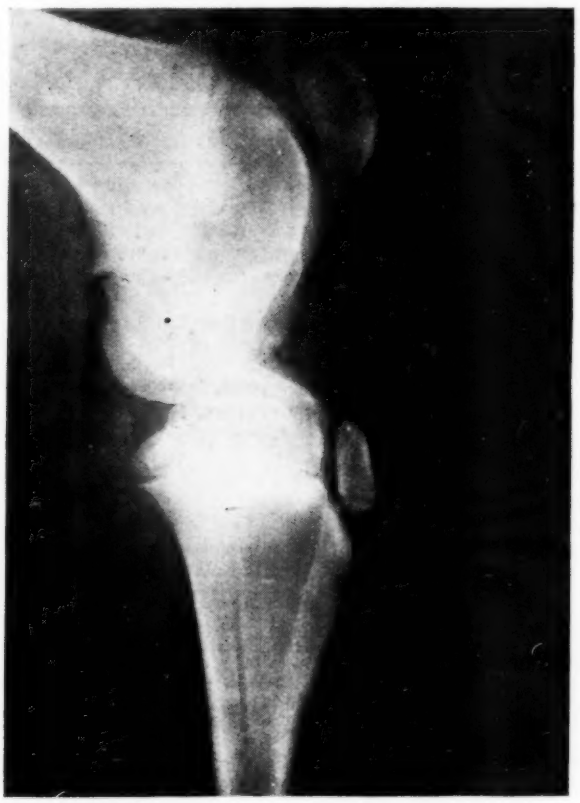
(4) The above-mentioned facts agree with what is already known about the development of these bones, *i.e.*, in the fore-limbs the extremity furthest from the humero-radial joint grows fastest and continues to grow till a later period—or, in other words, till the union of the epiphysis in these later joints—while the growth in the hind-limbs is the least in the extremity most distant from the femoro-tibial joint.

It is rather interesting to note, too, that the above-menfioned facts coincide with what actually occurs in the human being, both in the direction of the growth and in this direction being opposite to that of the nutrient arteries in those bones.

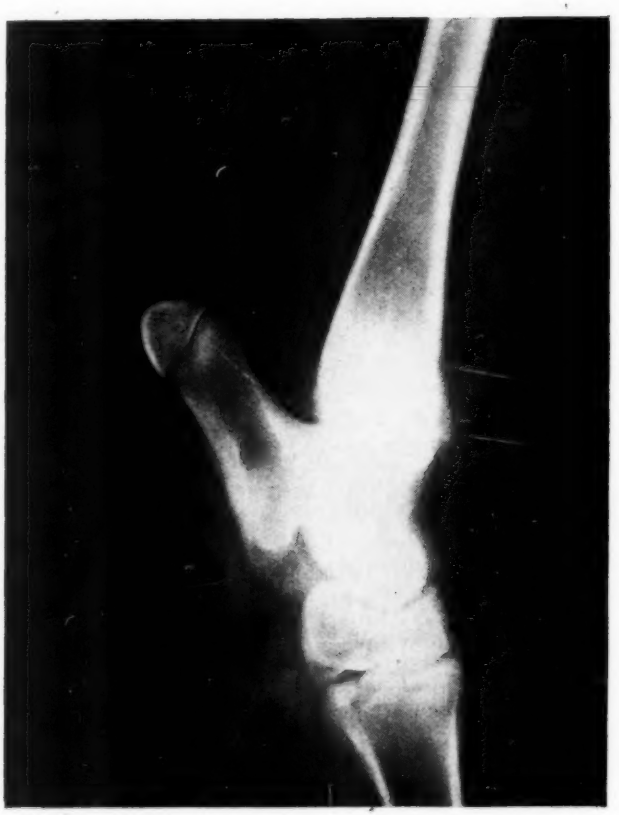
EPIPHYSEAL UNION OF LONG BONES IN YOUNG CATTLE

(Bint Bustang (No. 955). Born August 24th, 1935 ; X-rayed September 11th, 1935 ; age 17 days.)

Radius and Ulna



Stifle Joint



Hock Joint

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Name.	Age Y. M. D.	Humerus Distal.	Radius. P.	Radius. D.	Ulna. P.	Ulna. D.	Union of Radius.	Meta-carpals.	Digits. 1	Digits. 2	Femur Distal	Tibia. P.	Tibia. D.	Os calcis Tibia.
Bint Sabina	9 4 6	—	—	—	—	—	—	—	—	—	—	—	—	—
977	1 0 12	—	? +	—	—	—	—	—	—	? +	W	W	—	—
Bint Phoron	0 0 18	—	—		—		—	—	—	—	—	W	—	—
969	1 1 0	—	? +		—		—	—	—	? +	W	W	—	—
Bint Bustani	0 2 7	—	—	—	—	—	—	—	—	—	—	—	—	—
944	1 3 0	...	? —	—	—	—	—	—	—	? +	W	W	W	W
Babia	0 2 9	—	—	W	—	W	—	—	—	—	—	—	—	—
957	1 3 16	—	?	—	—	—	—	—	? +	+	W	W	—	—
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258	1 3 23	—	+	—	—	—	—	—	?	+	W	W	—	—
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Bint Salma	0 11 22	...	...	W	...	W	...	—	? + +	+	...	—	—	—
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Bint Phasom	1 0 25	—	—	W	—	W	—	—	? +	+	—	—	—	—
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Kinosar	3 10 0	+	+	W	? + +	W	+ above + below	+	+	+	+	+	+	+
947														
Rizan	4 1 15	+	...	W	+	W	+ above + below	+	+	+	...	+	+	+
946														
Nimat	6 1 3	+	+	W	+	W	+ above + below	+	+	+	+	+	+	+
877														
Dawlal	7 2 0	...	...	W	+	W	+ above + below	+	+	+	...	+	+	+
812														

+ = Union. — = Non-Union. ? = Not sure of union. ... = Photograph taken uninterpretable. W = Not done.

(5) The slight variation in the ages of union of the epiphysis between our figures and those of Sisson coincides, more or less, with what was already noted with regard to dentition, *i.e.*, dentition is about half to one year earlier in Sisson's selected cases while union of epiphysis is retarded for the same period of time in Sisson's collection.

(6) We definitely disagree with Sisson's statement that the lower end of the ulna unites with the radius before birth.

In conclusion, I must acknowledge the great help and encouragement which I received from the Dean of the Faculty of Agriculture, Hefnawy Bey, and the Principal of the Veterinary School, Captain H. E. Cross, and my best thanks are given to all those who took part in the investigation, amongst whom I have to mention Dr. Hosny, Dr. Seoudy and Dr. ElKheshin.

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Jury Service

As may already be known, the N.V.M.A. Council have decided to take further steps in an endeavour to secure the exemption of veterinary surgeons from jury service.

As far back as 1844 it was recited in the Royal Charter of Incorporation, of March 8th, of that year: "That owing to our said Petitioners not participating in the privileges and exemptions which have been granted to the medical and other professions much injury has arisen to themselves in the course of their practice, as well as loss to their employers; that our said Petitioners are so fully occupied in the discharge of the duties of their profession, and they are so continually at the call of the public as to be very ill qualified to discharge with due regard to the interests of the public the parochial and other services which the law at present enforces on them," etc., etc.

Eighteen years after this, in the year 1862, a Juries Bill was sent back to the House of Commons, with an amendment from the House of Lords to the effect that veterinary surgeons should be exempt from jury service. A vote was taken on the amendment, and 53 voting for, and 53 against, it fell to the lot of the Speaker to give his casting vote against this proposed addition to the Bill.

The question next came into prominence in Ireland, in which country the Juries Law exempts "*Licensed* Medical Practitioners," when Mr. Charles Allen, F.R.C.V.S., appealed against his being fined £2 for non-attendance as a duly summoned juryman. In support of the appeal Mr. Allen pleaded the above recital from the Charter of 1844, and in addition claimed that he was exempt from jury service as a "*Licensed* Medical Practitioner." A majority judgment decided that the Appellant had succeeded in establishing this claim, and the fine of £2 was remitted. As a result of this case any member of the profession in Northern Ireland, or the Irish Free State, can have his name removed from the Jury List on proof of registration as a veterinary surgeon.

In England, the Juries Act exempts "*Registered* Medical Practitioners" and without a diploma or degree, in human medicine, none is likely to succeed in establishing his claim to coming under such category. In the editorial of this paper of June 27th, 1903, the pros and cons of jury exemption were briefly referred to, but whatever may have been the opinion in the profession at that time, few practitioners would be found to-day unwilling to participate in the exemption from jury service which is enjoyed by legislators, judges, ministers of religion, barristers, solicitors in practice, registered practitioners of medicine, dentists, and officers and men of the regular military forces.

A vigilant watch is being maintained by the Parliamentary Committee of the R.C.V.S. and by the N.V.M.A. for any amending of the Juries Act, and when the moment for action arises every veterinary surgeon should make it his business to enlist the support of his representative in Parliament in having members of the Royal College of Veterinary Surgeons added to the list of those whose duties to the public preclude them from being suitable jurymen.

CLINICAL COMMUNICATION

Fracture of the Radius in the Horse with Sound Recovery

LINDSAY AUCHTERLONIE, M.R.C.V.S.
Nottingham

The subject was a six-year-old Dutch funeral horse, about 15·3 hands, which was kicked inside the off fore-arm about two years ago. The animal was very lame, but the owner being an excellent horsemaster had put him into slings immediately. I was called to see the horse two days later when I found very large firm swelling of the limb from elbow to knee and the skin tense. After preliminary clipping, the parts were punctured in several places and serum flowed freely. Crepe bandaging over layers of gauze was next applied as tightly as possible in an endeavour to reduce the oedema.

During this period the horse put a little weight on the limb but had not actually placed it firmly on the ground. On the fourth morning I found that the radius had fractured at its lower third, evidently due to the fact that, the pain having abated, the horse had put his weight on the limb and the periosteum had given way, *i.e.*, star or deferred fracture had existed.* It is quite certain that if this horse had belonged to any other local firm he would

*An X-ray photograph would have been of service to confirm the diagnosis.—*Editor.*

have been destroyed forthwith, but the owner is a lover of horses and black horses for funeral work are difficult to obtain. In addition, there was a particular regard for this animal.

Treatment.—Strips of mahogany about six inches wide were channelled along their length so as to give a concave surface. Undertaker's paper, *i.e.*, strips of a white composite fluffy "paper," was wound round the limb to make pressure over it more uniform. The splints were then applied on the anterior and posterior surfaces from the elbow to the fetlock with crepe bandages. Swelling of the limb being still a marked symptom, no other course seemed possible: anything of a more permanent character must have become loose in a short time when the size of the parts diminished. Re-application was carried out daily, but it became evident that in spite of this temporary support, forward displacement of the lower third of the radius was occurring many times a day through movement of the toe or by the tendency of the horse to sit back, thereby carrying the upper part of the radius backwards.

To counteract this, a piece of 2 in. × 2 in. timber was placed behind the limb from the elbow to the ground and the splints and limb were secured to it.

Although movements were now more restricted it was evident that "bending" of the radius was still occurring in sufficient degree to make it certain that if setting occurred the bone would be badly bent antero-posteriorly, as the limb was more commonly held with the bone in this position, and that "calf knee" would result.

An attempt was then made to apply a channelled, steam-bent, piece of light wood to the limb with the knee flexed so that no contact with the floor would be possible, but such great pain was evinced by the horse in the act of bending the knee that the process had to be given up.

It was now decided to refit the straight splints and to fasten them anew to the 2 in. × 2 in. upright which rested on the ground at the back and by this means, with the aid of a liberal nourishing diet plus cod-liver oil, the patient resumed work seven months later.

His gait is a little clumsy and there is a tendency to "dishing" of the foot on the affected limb which incidentally shows no sign of contraction. He is quite a serviceable horse and does his funerals and trots back!

It is not necessary to make any comment on the photographs (which are by Mr. C. H. Higson, Technical Photographer, of Nottingham) as they speak for themselves. It is interesting to note that when the horse was taken out to be photographed he was walking lame on the opposite foot due to a long-postponed visit to the farrier.

(*Concluded at foot of col.* 1, *page* 1540.)

ABSTRACTS

[**The Incidence and Diagnosis of Streptococcic Mastitis.** Van Rensburgh, S. W. J. (1937.) *Jl. S.A.V.M.A.* **8.** 1. 14-22. (8 refs.)]

It is stated that this disease has received most attention in Germany and America. In the latter country, in New York State alone, the annual loss of milk due to mastitis is considered to be £10,000,000 and the total loss of cows and milk £14,000,000. In Germany, where it is estimated that 50 per cent. of the cows are affected, the annual loss is said to be between £9,000,000 and £14,000,000. In South Africa, to calculate the annual loss of milk as a result of mastitis, the author assumes the incidence of the disease to be 20 per cent., or 200,000 affected cows. He states that the average reduction in milk yield per cow per annum can be taken at 100 gallons. Therefore, at one shilling per gallon the loss of milk annually is stated to be £1,000,000. The incidence of the disease in England is said to be about 40 per cent. and in Canada to vary (in the separate herds) from 19 per cent. to 97 per cent. The cow population of New York State is given as 1,330,000. Of these, 57,000 are annually eliminated as a result of mastitis. As the author has evidently withheld certain figures from the article, it would be unwise to try to draw any comparison between the relative annual losses in the countries mentioned.

As to diagnosis, seven different tests are given under the heading "Physical and Chemical Changes in the Milk." A method for the detection of pathological changes in the udder is mentioned. In the microscopic examination of the milk, the leucocyte count is not regarded as reliable for diagnosis. To detect the causal organism (which is the only reliable method) the author states that long chains of streptococci are easily found in smears made from a sample of milk that has been incubated for twelve hours at 37° C. Newman's method, which includes fat extraction, is recommended for staining.

P. E. M.

The author has never before seen a case of a fractured long bone in the horse terminate as this one has done. He has, of course, suspected star fracturing in some cases and has in some of them underestimated the time that must necessarily elapse before they were safe to liberate. He has never before seen a star fracture become complete where restriction of movement was actually in practice.

[**Pulmonary Coccidioidal Granuloma. A New Site of Infection in Cattle.** Davis, C. L., Stiles, S. W., and McGregor, A. N. (1937.) *J. Amer. Vet. Med. Ass.* **91.** 2. 209-215. 6 figs. (6 refs.).]

When coccidioidal infection has previously been observed in cattle and sheep the lesions have been confined to the bronchial and mediastinal lymph nodes. The authors here describe for the first time lung infection in six cattle out of 47 further cases examined. The lung lesions were slight, but the lymph nodes contained either a "suppurative-looking" pus or a cheesy material like that found in tuberculosis. In smear preparations of this the parasites were numerous. Histologically, the lesions comprised encapsulated granulomatous foci, with numerous giant cells in which the majority of the parasites were found. The latter were double-contoured oval bodies, 10μ to 50μ in diameter, Gram-negative but with a strong affinity for eosin. Pure cultures of the fungus were obtained on meat-infusion agar. It is believed that the age factor may control the incidence of lung lesions in cattle; the animals in these cases were six years old, while in previous reports they were much younger.

[*Coccidioides immitis* is an ascomycetes fungus which grows on artificial media as a mould and appears in the tissues as a double-contoured "capsule." It has been recognised as occasionally causing disease in bovines, and is a 50 per cent. fatal disease in some parts of California. In view of the frequent occurrence of skin lesions in man, Traum has tried, unsuccessfully, to link it up with the "skin-lesions" of certain tuberculin reactors.]

N. H. H.

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[**Theileriasis of Cattle in India.** Sen, S. K., and Srinivasan, M. K. (1937.) *Ind. J. Vet. Sci. & Anim. Husb.* **7.** 15-35. (3 tables, 3 charts, 1 plate, 25 refs.).]

This paper, which will be of great interest to all those concerned with the study of theilerial infections in cattle, records observations made on the disease produced by a strain of theileria isolated from an Indian hill bull at Muktesar and passaged through 273 bulls by subcutaneous inoculation of blood. Nearly 47 per cent. of the animals used proved resistant to infection, whilst the mortality rate in those which contracted infection approximated 76 per cent. The disease was transmitted by the inoculation of blood from an animal *in extremis* when the red blood corpuscles showed an infection rate of one to ten parasites per corpuscle and blue bodies were present in the blood. The disease was characterised by an incubation period of 13 to 23 days, a febrile reaction which lasted two and three days and was not accompanied by loss of appetite,

constipation followed by diarrhoea and enlargement of the prescapular and precrural lymphatic glands. The average course of the disease was 5·5 days, and although parasites might persist in the blood for a short time, recovery appeared to confer a sterile immunity.

The most marked lesions consisted of oedema and enlargement of the lymphatic glands and spleen, an oedematous condition of the body fat, oedema of the lungs and ulceration of the abomasum. The theileria appeared in the blood almost entirely in the ring form, and up to 100 per cent. of the red corpuscles might be invaded, whilst Koch's bodies might be as numerous as ten per field. Blood remained virulent for four days at room temperature. Twenty drugs, including trypaflavine and gonacrine, were tested as to their value in treatment but appeared to be unsatisfactory.

The condition is contrasted with the theileriasis previously recorded in India in imported cattle, and the identity of the parasite is discussed, the authors considering that it presents a close resemblance to *Th. dispar* as described by du Toit.

U. F. R.

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[Pasteurellosis in Cattle. Hellesnes, P. (1936.) *Skand. Vet.-tidskr.* **26**, 4. 225-240.

This is an account of the first authenticated outbreak of bovine haemorrhagic septicaemia or pasteurellosis in Norway. It occurred in a herd of 16 and the symptoms and *post-mortem* findings showed the disease to be the respiratory or pectoral form.

A Gram-negative ovoid bacillus was isolated from the lungs and other tissues and it produced indole and fermented certain carbohydrates, but these reactions do not agree in their entirety with those usually credited to *Pasteurella septica*. On the other hand, the reactions correspond very closely with those produced by strains of pasteurella isolated from reindeer by Magnusson. The strains isolated from this outbreak were pathogenic for mice, rabbits and guinea-pigs, and they were agglutinated by the sera of infected cattle but not by sera from normal cattle. The administration of a culture into the trachea of a cow produced the pectoral form of the disease, followed by death in four days, whilst a subcutaneous inoculation caused death after a local oedema and a septicaemia. No result followed an attempt to infect a cow by oral administration of diseased organs, nor was contact infection successful. Serum from a recovered cow protected mice against artificial infection and both Swedish and Norwegian pasteurella sera protected mice, but less effectively.

Two other outbreaks in cattle, which occurred in Norway some years previously, are referred to and considered probably to be pasteurellosis.

R. L.

[X-Ray Diagnosis of Giant-cell Bone Tumours. Kovacs, J. *Arch. Tierhlk.* **72**, 1, 40-47.]

A case record and a discussion. A 14 years old neuter cat was brought to the Veterinary College at Budapest for lameness in the off fore-leg, with the history of having been bitten there by a dog about a year before. In place of the humerus was found a slightly pliable spindle-shaped mass, which was not tender on manipulation. Shoulder and elbow joints had normal movements and there was no adherence of the overlying skin. A provisional diagnosis of uncalcified callus after fracture was made, but after X-ray examination neoplasia also came into consideration. The latter showed that hardly any bone tissue was left in the humerus, which cast a large dense smooth-edged shadow in its higher half.

Post-mortem examination revealed the humerus transformed into a fairly firm body enclosed in a white, strong capsule. The interior tissue was formed of red-brown substance, mostly hard but with some soft parts: on sectioning it showed a synctium composed of round and spindle cells containing very large numbers of giant cells and fragments of the original decalcified bone tissue.

Diagnosis was then established as benign giant cell tumour of myelogenous origin.

With regard to the X-ray diagnosis of bone tumours, these are differentiable into myelogenous and periosteogenous and also into those associated with destruction and eating away of bone and those with formation of new bone. To the former of both pairs or types belong enchondroma, myelogenous sarcoma, myeloma, endothelioma and the giant-cell or brown tumour. To the other pairs belong tumours originating from irritation of the periosteum—exostoses of various types, enchondrosis and osteoma. Benign tumours are differentiated from malignant types by their slow rate of growth and their tendency not to eat into tissue other than that of their origin.

The prognosis for giant-cell bone tumours of limited size is good, for they can be scooped out by surgical operation and will probably not recur.

Two X-ray pictures are given, but their complement—histological pictures—is lacking.

J. E.

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[Calvé-Perthes Disease: Malum Deformans Juvenilis Coxae of Dogs. Moltzen-Nielsen, H. *Arch. Tierhlk.* **72**, 2, 91-108.]

The author describes what he thinks is a new and authentic disease of young dogs and gives the above name to it. He has seen 19 cases, eleven in males and eight in females, all in small breeds.

Symptoms usually begin at an age of five to eight months and are characterised by supporting leg lameness, the dog first being observed

to hop a lot on its sound leg and spare the affected one. On examination there is little to be made out by manipulating the parts. The great trochanter may be fractionally higher but not so high as in luxation of the hip joint, practically no pain is caused by passive movements of the hip and only in well-established cases is there muscular atrophy.

X-ray examination is necessary to demonstrate the condition; it must be made with the dog on its back. It is then seen that the head of the femur is defective in size and lacks its normal shape, being flattened and deformed in its articular surface. As a result the neck of the femur may appear shortened. In some cases it appeared as if the union between head and neck (epiphysis and diaphysis) had been delayed. Incidentally, the figures would have been more valuable if care had been taken to hold all the dogs in exactly the same position of their legs in relation to the pelvis. Only one bilateral case was seen; in it the deformity of the femoral heads is striking, also in the drawings of the dissected parts.

The dogs were treated by diet designed to favour bone growth and calcification, with massage and carefully regulated exercise, etc., and some were given intra-articular injections of liquid paraffin, but the author doubts whether these did any good at all. Thirteen cases improved greatly, one was cured completely, three were destroyed and two were not allowed to be treated.

Reference is made to Spicer's article on Perthes' disease in dogs (*Vet. Rec.* 1936, p. 325) and to the literature on the disease in children, and the suggestion is made that they are identical. In two of the author's cases—a rough-haired terrier and a Cairn—heredity seemed to play a part.

J. E.

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[Operation for Perineal Hernia in Male Dogs. Forssell, G. (1937.) *Berl. tierärztl. Wschr.* No. 32. 485-488. (5 figs.)]

The author discusses causation, symptoms and treatment, of perineal hernia in the dog, and puts forward an operative technique which is claimed to be superior to others.

After suitable anaesthesia, emptying of the rectum and preparation of the site, a vertical incision is made in the hernial sac. The hernial contents, usually protruding between the coccygeus and levator ani muscles, are returned, and the hernial ring is closed by means of catgut sutures, using a small curved needle. The first row of sutures is put in as deeply as possible, and this is followed by further rows of sutures, each row burying the preceding. Careful suturing is necessary to avoid wounding branches of the internal pudic artery and vein. The skin wound is closed by inserting intradermal stainless wire sutures (diameter of wire, 0·2 mm.), the twisted ends of each suture lying between the edges of the wound. For some days after operation the dog is kept on a laxative diet. Ten cases have been treated, eight being successful.

The secret of success in this method appears to depend on the number of buried sutures that can be employed. The author has frequently inserted as many as 30 in effectively closing the ring.

C. F.

REVIEWS

["A Guide to Veterinary Parasitology for Veterinary Students and Practitioners." By T. Southwell, D.Sc., Ph.D., and A. Kirshner, M.B., Ch.B., D.T.M., pp. x + 144, 88 illustrations and 12 diagrams illustrating life histories, Royal 8vo. Price 7s. 6d. net.]

In their introduction to the first edition of the *Guide*, the authors point out that the animal parasites of domestic stock are so numerous that to deal adequately with them all is beyond the scope of this small book. They have, therefore, selected those species which the veterinarian is most likely to meet, have avoided lengthy morphological descriptions but stressed characters of diagnostic value, and throughout have endeavoured to present the subject in as simple, elementary and practical a way as possible.

The first chapter deals with the proper care and use of the microscope and the making and staining of blood films. The next two chapters are devoted to Protozoology, the Sporozoa and aberrant *Sarcocystis* being discussed in the first, the Mastigophora and Ciliata in the second of these. In chapter IV the principal tapeworms and in chapter V the more important flukes are mentioned, with brief observations on their life histories, pathogenicity and diagnoses; each chapter concludes with notes on prophylactic measures. The important group of roundworms is dealt with in chapters VI and VII, the first of these being devoted to the Ascaroidea and Trichuroidea, and the second to the Strongyloidea, Spiruroidea and Filaroidea, with a concluding section on prophylaxis. In chapter VIII the examination of faeces, an important procedure to the clinician, is described, and the distinctive characters of the eggs of the more important helminths are mentioned. Helpful notes are also given on the preservation of faeces and worms and on the use of carbolic acid as a clearing agent in the examination of specimens for diagnosis. The concluding chapter contains a number of tables dealing with (*a*) the parasites of meat and fish, (*b*) the location

of the infective stages of the various species discussed throughout the book and (*c*) a host-parasite list. These are followed by two full-page plates showing eggs of various helminths, and by twelve diagrams illustrating the life history of common worm parasites of domestic stock. There is an adequate index. This brief summary of the contents of the book will indicate that only endoparasitic forms are discussed; entomology, which involves most ectoparasites of animals, is omitted. Presumably this course was adopted to keep the price of the volume within a reasonable limit.

The text is clearly printed, important names and headings being thrown into prominence by the use of heavier type; misprints, such as *hydatigina* on page 111, are pleasantly rare, and the illustrations, as a whole, are commendable for their freedom from excessive detail. The book does not pretend to be a comprehensive treatise but is simply, as its title indicates, a guide to supply the student and practitioner with essential principles which can be supplemented by reading larger standard works, by lectures and by practical experience.

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[**"Weeds, Weeds, Weeds."** By Sir Charles V. Boys. Old Westminster Press.]

This little pamphlet, published at one shilling, though not concerned with veterinary matters is one that any member of the profession can read with amusement and profit to his garden in the course of an evening at his fireside. It relates in homely fashion the endeavours of a distinguished scientist to free his gardens and meadows of those harmful or unwanted plants we group together as weeds.

The various species of weeds commonly met with are dealt with in turn, and the chemical or other means of destruction that the author has found the most economic and specific are described.

It has given the reviewer great pleasure to read and learn what this little book has to teach the gardener, and perhaps the best recommendation he can give is the fact that his own gardener, having read the book, has already commenced to put its precepts into practice.

And now, having been told all about the lethal side of gardening, we await a companion volume from the author on the art of making things grow in the garden. We suggest "Green Fingers" as its title.

It was announced in the House of Commons on Tuesday of last week that it had been decided to appoint a Royal Commission to inquire whether, for considerations of—among other matters—economic policy closer co-operation between Northern Rhodesia, Southern Rhodesia, and Nyasaland, was not desirable. The Commission is expected to leave England early next year.

REPORT

Corporation of Glasgow

REPORT OF THE CHIEF VETERINARY INSPECTOR FOR THE YEAR 1936

This report of Mr. S. G. Abbott, M.R.C.V.S., D.V.S.M., may be conveniently divided into three parts, *viz.*, dairy herd inspection, inspection of meat and other foods, and the administration of the Diseases of Animals Acts and Orders.

Dairy Herd Inspection.—There are 39 registered dairy herds in the city, comprising on an average 888 cows. All these herds are inspected four times and some eight times a year. Nineteen cows were slaughtered under the Tuberculosis Order, 1925, from these herds, comprising four cases of tuberculosis of the udder and 15 cases of chronic cough and showing definite clinical signs of tuberculosis. *Post-mortem* examination on these cows revealed eleven cases of "advanced" tuberculosis and eight cases "not advanced." The average agreed valuation per animal was £12. Of the 28,818 cattle exposed for sale at the Glasgow Cattle Market 60 were seized under the Tuberculosis Order. No mention is made of any prosecutions resulting from these seizures.

Meat and Other Foods Inspection.—The veterinary department must be complimented on a very thorough system of inspection under this section. The numbers of animals slaughtered at the Merklands and Moore Street abattoirs are as follows: Cattle, 82,360; calves, 6,077; sheep, 364,246; pigs, 54,412. Of these, 518 whole carcases of beef, 171 of veal, 904 of mutton, and 399 of pork were condemned, together with 3,805 part carcases. The percentage of total condemnations is comparable with other centres except in the case of calves, where as many as one in every 35 is condemned. The chief causes of condemnation in the case of calves are emaciation, joint-ill, immaturity, and tuberculosis.

Table No. 2, giving the causes of all total and partial condemnations, is very interesting. Three cattle were totally condemned on account of actinomycosis and only seven on account of Johne's disease. Lymphadenitis and lymphadenoma each accounted for one carcase of pork, melanosis for one carcase of beef, and swine fever for 110 carcases of pork. Tuberculosis was responsible for the condemnation of 387 carcases of beef, 29 of veal and 50 of pork. Table No. 3 gives a return of organs condemned. It is to be noted that only one tuberculous spleen was observed in 54,412 pigs slaughtered. This figure is so low as to warrant the assumption that a clerical error has been made.

A very considerable business is done in the export of horse carcases from Glasgow, and in this connection 719 carcases were examined, of which twelve were totally and six partially condemned. The causes of condemnation are not mentioned.

The Public Health (Imported Food) Regulations (Scotland), 1932, impose onerous duties on the veterinary department staff and a detailed list of all meat and meat products inspected is given in the report. A note on the cause of condemnation of some of these articles would have been welcome. Over 100 tons of fish, fowl, game, etc., were condemned, the cause being generally decomposition. The inspectors of the department are responsible for the operation of the Merchandise Marks (Imported Goods) Order, 1934, and in this connection seven convictions were obtained for breaches of the Order.

Diseases of Animals Acts. *Anthrax.*—Investigation was carried out in twelve suspected cases of anthrax, resulting in one proving positive. It was convenient that in all cases in-contact animals could be slaughtered, so eliminating risk of spread of the disease. It is pleasing to note that extensive use is made of the special killing room for sick and injured animals. Nearly 900 animals were slaughtered in this room and all examined for evidence of anthrax.

Swine Fever.—Eleven outbreaks of swine fever were confirmed during the year. The period of restriction of movement did not exceed six months.

Transit of Animals Orders.—During the year 5,301 road vehicles were cleansed and disinfected at the cattle market, and 30,287 cattle trucks were inspected.

SCIENTIFIC DELEGATION TO INDIA

A British scientific delegation is now on its way to India, having been arranged by the British Association at the request of the Indian Science Congress Association, which will celebrate its 25th anniversary at Calcutta from January 3rd to 9th. The President will be Sir James Jeans, in succession to the late Lord Rutherford, who was to have presided. A presidential address prepared by him will be communicated to the Congress by Sir James Jeans.

The British Association has broken new ground in organising a delegation of this character, and the hope has been expressed, by the late Lord Rutherford among others, that the precedent thus created may be followed in other directions in the future, as a further means of strengthening Imperial co-operation in the advancement of science.

The delegation included a distinguished member of the veterinary profession in Sir Frederick Hobday. A large body of his former students from the Royal Veterinary College gave Sir Frederick a rousing "send-off" from St. Pancras on Friday of last week—a gesture which was greatly appreciated by their late Principal.

N.V.M.A. DIVISIONAL REPORTS

Central Veterinary Society

SIXTY-FOURTH ANNUAL DINNER

Presentation of the "Victory" Medal to Major Hamilton Kirk

The modern practice of making the annual dinner of a learned society also the occasion for a dance, once again was adopted with success by the Central Veterinary Society (Division, N.V.M.A.) for this year's function—the sixty-fourth in the series—which was held on Friday, November 12th, at the May Fair Hotel, W.

The President of the Society, Professor J. McCunn, M.R.C.S., L.R.C.P., M.R.C.V.S., and Mrs. McCunn received the very satisfactory number of Fellows and their ladies who attended and who included the President of the Royal College of Veterinary Surgeons, Lieut.-Colonel P. J. Simpson, D.S.O., T.D., F.R.C.V.S., J.P., and Mrs. Simpson. A feature of the evening was the presentation of the "Victory" medal to Major Hamilton Kirk who, as essayist and exhibitor of specimens at meetings and as an active member of Council, has rendered consistent support to its activities in a measure such as has contributed very materially to the well-being of the Society throughout the long period of his membership.

Following the honouring of the loyal toasts, Lieut.-Colonel P. J. Simpson (President, Royal College of Veterinary Surgeons) gave that of "The Central Veterinary Society." In doing so, Colonel Simpson said he was afraid that when he, perhaps rather light-heartedly, undertook, on the invitation of their Secretary and their President, to propose that toast, he had not given the requisite thought to it because since his acceptance he had noticed one or two "snags" about it. The first was that, having been the President of the Society and a Fellow, it was perhaps rather awkward for him to speak of the efforts on its behalf of the past-Presidents and other Fellows; the second was that he had been told that he would be limited to three minutes—a period in which it was quite impossible for him to say as much as that toast deserved; at the same time, he could not let it pass just with a couple of words.

He knew that Society was one of the oldest and largest of the Divisions of the "National": he believed that, at the moment, they had something like 272 members, which was very gratifying. (Applause.) One thing about the Society he had always liked particularly was its name—a fine "honest to goodness" name—"The Central Veterinary Society." Why their parent body wished to incorporate the word "Medical" in its title had always beaten him and always would. He saw no reason why they

should be ashamed of themselves: why not call themselves a veterinary society and leave it at that? (Hear, hear.) That was one of the things that pleased him greatly about that Society. Another was the fact that the Society was one of the first Divisions of the "National" to admit a lady veterinary surgeon to its membership. (Hear, hear.)

There were, and had been many eminent members of the Society and he had no doubt there would be more to come. They had indeed, so many eminent men from whom to make choice of President that he should think that the office now was becoming quite competitive—a great change from his day, when they had to look round. (Laughter.) There was no doubt, however, that in their present President they had secured the services of a most excellent man. (Applause.) Professor McCunn had, somewhat like himself, passed through the office of Treasurer prior to taking that of President: that might be a very good training ground for a President—at any rate, it did teach him to look after their finances when in the Presidential Chair. Their President certainly had served them extraordinarily well by giving freely and generously of his store of scientific knowledge at their meetings and he was sure they were all very grateful to him in that respect. (Hear, hear.)

With regard to Dr. McCunn's personal history, he understood that their President came from, should he call it, agricultural stock or farming stock, and they thought when they looked at Dr. McCunn, that that farm had done very well—they raised some very good stock on it. (Laughter.) Their President had touched the various branches of veterinary surgery, including practice; like many others he joined up and served in Mesopotamia and so had a taste of Army life. From this he had gone to the Royal Veterinary College in Camden Town, that new wonderful institution, at the opening of which by Their Majesties the King and Queen some of them were privileged to be present: a more dignified, more simple and more homely ceremony one never wished to attend. (Hear, hear.) Their President and some others there could tell them more about it than he could do, but it did appear to be a wonderful function and undoubtedly the King and Queen were extremely interested and learned a great deal about the activities of the veterinary profession in general and that magnificent School in Camden Town to which Professor McCunn was attached.

He apologised for those few remarks, but as he had endeavoured to explain, they must blame their Secretary and their President if he had appeared to treat that toast with scant courtesy and not the honour that it should have had attached to it. (Applause.)

The President (Professor J. McCunn), on behalf of the Fellows, thanked Colonel Simpson for the very kind references he had made to the Society in proposing that toast. They all knew its history—he himself had heard it for 18 years—(laughter)—and they all knew about its past-Presidents. They also had heard from the proposer of the toast that their President had come from what was evidently a good farm; he (the President) could say that the farm from which Colonel Simpson came must have been in advance of modern science, because all the fields must have been limed and slagged for ages and he was sure that the farmer or owner of that land would not have to apply for a Government subsidy in order to produce better grazing. (Laughter.)

Colonel Simpson had said that, as a speaker, he had to be brief and concise: he therefore must follow his example. Colonel Simpson had said something, however, about the office of President being competitive. It was competitive, in a sense, but the wrong way round—there was tremendous competition on the part of the other Fellows to shove forward one of the others. (Laughter.) They had, for instance, two very suitable men in that room, Mr. Herbert King and Mr. Jones, who for years had refused that office, and in his own case he was like Sir Andrew Aguecheek in that, in modern language, he was pushed into it. (Laughter.)

He thanked Colonel Simpson very much for his kind remarks about him and also about the Central Veterinary Society.

PRESENTATION OF THE "VICTORY" MEDAL

Continuing, the President said that before he sat down he had a very pleasant task to perform and that was to present the Society's annual "Victory" medal. There was no need for him to tell them why that medal was presented: everybody knew that they had a victory—and it was a victory in spite of what was said at the present time—(hear, hear)—and that medal was struck to commemorate it. Each year there was chosen from the Society a man whom they thought had, from the scientific point of view or some other, done good work for the Society.

That year, to his (the President's) great pleasure—and he did not know why it had been forgotton for so long—the honour fell upon Major Kirk. (Loud applause.)

Major Kirk had done many things for that Society. He remembered that when he (the President) first joined, Major Kirk seemed to be the "king-pin" of the Society: he was the man who arranged things; in fact, at first he thought "what a busybody this fellow Kirk is!" (Laughter.) After he got to know him, however, he realised that he was doing everything in the interests of the Society: had it not

been for such Fellows as Major Kirk he was quite sure that it would not have been as prosperous as it was to-day. (Hear, hear.) He had been on the Council of the Society for many years, he had given them papers, he had taken part in their discussions and the number of morbid specimens he had brought to the meetings was extraordinary: the death-rate in Golders Green must be high. (Loud laughter.)

Apart from his efforts on behalf of the Society, however, Major Kirk had done good work for the profession on the Council of the N.V.M.A. and excellent work on the Council of the R.C.V.S. He would go so far as to say, in regard to the former, that the building at 36, Gordon Square was largely the result of Major Kirk's thought and scheming (applause): although he (the President) was one of the people against the project at the time, he knew now that his ideas were correct. He believed, too, that Major Kirk was one of the leading men behind the acquisition of bigger premises for the R.C.V.S.: again, he (the speaker) was altering his opinion—he was beginning to think that it would be a good thing.

Major Kirk set about his efforts with dynamic energy and he chose objects which were always for the good of the profession. He did not think there was need to eulogise Major Kirk further, for his work spoke for him. He would therefore ask him to come forward to receive the "Victory" medal.

Major Kirk having complied, amid enthusiastic applause, the President handed the medal to him with the words: "This gives me great pleasure, Major Kirk, because for a long time you were my D.A.D.V.S. and I was pleased to serve under you; now I am very pleased to do this for you."

Major Hamilton Kirk, acknowledging the honour of the presentation to him of the Society's now renowned "Victory" medal, said that he felt somewhat overwhelmed by the very kind things said of him by the President and which he thought perhaps were not quite deserved. It was very difficult for him to express in words the gratitude he felt towards the Fellows of the Central Veterinary Society for so kindly awarding him that much-coveted "Victory" medal.

Some years ago he played some active part in getting the quality and intrinsic value of that medal improved, but he never dreamed that he would one day receive one. (Laughter.)

Every recipient of that medal in the past must have felt, as he felt, that its award was not only a very generous recognition of services rendered but that it could only have been possible where the recipient was held in high esteem by his professional colleagues: that he might be so regarded was a source of considerable pleasure and comfort to him. Yet since his name was proposed at the last meeting of the Council of the Society, he had wondered whether his fellow councilmen had had time to regret their selection—for he felt a genuine misgiving at that moment that his qualifications for receiving that medal fell lamentably short of that of many of his predecessors.

Whatever small service he might have rendered to the Society during his 17 odd years of membership, he could assure them all that he did not regard the award of honours as a sign that one's activities might decline. (Hear, hear.) He hoped he might be spared to devote many more years to the promotion of the interests and welfare of that Society, and he promised to be as worthy and as active a member as he might be deemed to have been in the past. Might he, therefore, heartily and most sincerely thank them all for the honour they had conferred upon him that day. (Applause.)

The President now paid a warmly-applauded tribute to the Hon. Secretary, Mr. Bywater, and Mrs. Bywater, for all that they had done to make that function the great success that, he observed, all must acknowledge it to be. He then requested the company to rise and honour the toast of "Our Guests"—for no dinner or any other function would be complete without them.

The toast list having been completed, the company gave itself over to the additional pleasures of the dance, to the excellent music provided by Jack Anderson and his band. During the evening Miss Barbara Pett-Fraser, vocalist, charmingly demonstrated Major Kirk's ability as a composer, while Mr. Richard Hassett and "Walter and Johnny" also entertained most acceptably.

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North Midland V.M.A.*

MEETING AT SHEFFIELD

A general meeting of the above Division, N.V.M.A., was held at the King's Head Hotel, Sheffield, on Wednesday, November 10th, 1937.

The President, Mr. D. D. Canning, of Doncaster, occupied the chair, and the following members and visitors were present: Messrs. F. H. Addison, E. F. Angler, W. Collinson, P. M. Evershed, T. C. Fletcher, G. Green, R. Hudson, E. Marrison, H. M. Salusbury, F. C. Scott and H. Thompson. Messrs. R. E. Hirtes and W. Wardrop were present as visitors.

An apology for absence was received from Mr. H. R. Laycock.

Correspondence.—Consideration was given to

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the following letters received from the General Secretary of the N.V.M.A.:—

(1) Dated September 10th, 1937, relating to the Attested Herds Scheme. It was resolved that the scale of fees set out in the letter receive the support and approval of the Division.

(2) Dated November 6th, 1937, relating to the Dalrymple Champneys prize. It was resolved that this matter be considered at the next annual general meeting of the Division to be held in January, 1938.

(3) Dated November 6th, 1937, relating to R.S.P.C.A. clinics. It was resolved that consideration of this letter be left to the Council of the Division with power to add that a meeting of the Council shall be called early in December.

Membership.—The resignation of Mr. G. G. Rennie (Ministry of Agriculture and Fisheries) was accepted with regret.

A nomination for election to membership of the Division was received from Mr. R. E. Hirtes, of Sheffield.

Next Meeting.—It was resolved that a General Meeting of the Society be held on the third Tuesday in January, 1938 (*viz.*, the 18th), when Messrs. T. J. Smith and Nephew, Ltd., be asked to show their film on "The Treatment of Fractures in the Dog and Cat," and at the meeting also shall be discussed the matter of the State Veterinary Service.

Owing to an unfortunate mishap the film on "Fractures in the Dog and Cat," which was to have been shown at the present meeting, went astray, and members inaugurated an impromptu clinical discussion, in which the majority of the members took part.

There being no other business, the meeting was declared closed.

H. M. Salusbury, *Hon. Secretary.*

DISEASE AND RESEARCH IN INDIA

The Delhi correspondent of *The Times*, in a message dated November 29th, says: "An appeal for greater philanthropic support of medical research activities in India was made by Lord Linlithgow, the Viceroy, recently in addressing a conference of medical research workers to which delegates came from all parts of the country. He emphasised the need for expanding research work on malaria, cholera, nutrition, tuberculosis and maternal and infantile mortality.

"Lord Linlithgow said that an important forward step was being taken to co-ordinate agricultural research with the needs of human nutrition. The maternal mortality was estimated at between 150,000 and 200,000 a year. In Bengal alone there were 100,000 deaths a year from tuberculosis, and the number of persons afflicted may be as large as 1,000,000. He stated that an appeal was about to be made by Lady Linlithgow regarding a campaign to combat tuberculosis."

THE LATE Dr. O. CHARNOCK BRADLEY

PERSONAL TRIBUTES

For many months to come we shall be publishing, in the section of this journal devoted to the reports of meetings, the expressions that will be voiced, wherever British veterinarians are gathered together, of the great sense of loss pervading the profession in the death, recorded with the deepest regret in our last issue, of Dr. O. Charnock Bradley, Principal of the Royal (Dick) Veterinary College, Edinburgh. In the meantime, it is our sad privilege to insert below personal tributes to his memory.

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From Professor R. G. Linton, Acting Principal, Royal (Dick) Veterinary College, Edinburgh:

It has been the writer's privilege to have had the friendship of Dr. Bradley for over 30 years, and it has been such that the opportunity of adding a tribute of appreciation to his memory is greatly valued. While his scientific attainments and his leadership are readily apparent to all in the profession to which he brought such credit, the man who lay deeper was not perhaps so easily discerned.

His students, past and present, had a feeling for their Principal that was something more than respect. It is probable they sensed that a somewhat austere exterior was but a cover for a generous heart and compassionate nature. Indeed, this was true, for, although a strict disciplinarian, the discipline he maintained was never irksome and to the student in trouble he always showed a real humanity, and was ever slow to condemn. His strength of character was such that he seldom, if ever, sought the advice of others and never offered it unasked.

Dr. Bradley was never demonstrative and kept his emotions under strict control, but he could be deeply moved by the beauties of nature, the form and colouring of hills, well-grown trees, and autumn tints, which this year of his passing have been more beautiful than one can remember. Sentiment did not often become apparent, yet it lay deep within him. On the desk in his room at the College there is an unpretentious brass inkstand which he would never allow to be removed because it was given to him by a laboratory boy who went to France and never returned.

Though strong in his adherence to ceremony, where ceremony added dignity to the occasion, Dr. Bradley preferred the simple things of life to the ornate, as all his home surroundings showed. He found particular pleasure in etchings, books and music.

Dr. Bradley was an indefatigable worker with a remarkable capacity for rapid and precise execution, whether working in his laboratory or

in his garden. In dissection or in planting seedlings his work showed a neatness and finish that was characteristic of all his undertakings. He always had a clear view in his mind of what he wanted and laid his plans accordingly, never deviating from the path whatever difficulties had to be overcome.

His classical research into the development of the mid-brain for which he was awarded the Doctorate of Science in 1905 was carried out under conditions which would have daunted many. His sole "laboratory" was a narrow space under the tiered seats of the lecture room. There he worked, taking advantage of those odd moments generally wasted by most of us.

Dr. Bradley's love for flowers and his success in plant breeding are known to all his friends. It was in his small garden in Fountainhall Road, where he first took up the breeding of delphiniums with that vision and thoroughness characteristic of all his undertakings, that the foundation was laid for his future successes.

In later years he found relaxation from the arduous duties of his principalship in the picturesque village of Gifford. At first he rented a modest dwelling with land attached, which gave him greater scope for the execution of his ideas, but soon he found what he had been seeking, a suitable site on which to build a house and design a garden.

His sitting room at "The Wards" contained what were his most treasured possessions, presents from his friends. A bureau from his College colleagues, an armchair from the students, a desk chair from the North of England Veterinary Medical Association, a crystal vase from his secretaries, and over the mantelpiece a replica, gifted by the artist, of his recently painted portrait presented on the occasion of his semi-jubilee as Principal. Though he said little, one knew that Dr. Bradley was touched by these gifts, and it was in this room that he must have found contentment on the realisation that his life's work was appreciated by those who knew him.

He loved the view from the window, and there we would sit on the window seat after tea, watching the smoke curling up over the red tiled roofs of the village, while we talked of the hills, birds, books or poetry—never of politics, never of one's fellowmen. "Shop" was excluded from Gifford.

Dr. Bradley loved his country home and almost the last words he spoke were "How is Gifford?" To those who knew the place and had watched it in the making, the tragedy that its designer should have gone from it just when his years of labour and patience had come to fruition might mask the reality that he had achieved what he desired—made a beautiful garden, grown exquisite flowers and given them in abundance to his friends.

From Professor J. B. Buxton, Principal, Royal Veterinary College, London:

It is no easy thing to write an appreciation of the life or work of Bradley at this juncture and a close friendship extending over more than a quarter of a century does not lighten the burden. We are as yet too close to the harsh circumstance of his untimely passing to review with dispassionate restraint the many essential characteristics which constituted the Dr. Bradley whom we knew, respected and loved. Yet it is certain that history will grant him a place in the very first rank of those whose lives have marked a milestone in the advancement of the profession which he chose to serve so well.

His attributes were so many and so varied that no single appreciation of his life or of his work could hope to do justice to this man of many parts. Fortunately for me, I have been asked to deal only with my personal knowledge of his work for the "National." Yet this could, were it permitted to do so, involve an almost endless reference to each and all of those essential characteristics, for they were severally shown in this, one of the burning passions of his life.

I welcome the opportunity since it permits me to place on record for the first time the part which he played at a turning point in the history of the "National," which is known to few of those who owe so much to the Association as it is to-day. Reference has already been made to the work, having no like or equal, which he expended in the conception and inception of the Association up to what has been called the "rejuvenated organisation in 1921"; yet it was at this juncture that he displayed those characteristics of serenity, forcefulness of purpose, long-sightedness and inspiration which have been rightly attributed to him and showed them at their best. There can be no harm done now by revealing the fact that the newly constituted "National" was bankrupt, that is to say, its paper assets showed a substantial solvency but there was an insufficiency of ready money to pay current wages and other expenses. Who can realise the mental anxiety of the few who met at regular intervals in the upper room of some cheap and dingy offices in Buckingham Palace Road and stared grim reality in the face. All those wonderful idealisms of a National Veterinary Medical Association which had been envisaged by Bradley were in the balance. The *Veterinary Record*, the journal of the newly constituted Association had been acquired, the fundamental requirements of a truly *National* Veterinary Association had been established but there was apathy in the ranks of the profession and insufficient cash in the till to pay current expenses. Those anxious days can never be

forgotten by the few stalwarts who stood by the "National" and were prepared to go to any length to see the goal of their ambition secured. What memories the recounting of this time will bring to the minds of Wooldridge (then Honorary Treasurer), McIntosh, Male and others. Bradley was the President—his serene confidence, strength of purpose, breadth of vision and wise judgment inspired even the flagging spirits of his colleagues to a further effort, for it was realised that the profession, having already been primed with adverse criticism, was waiting to see how the cat would jump. The meeting at Bath was the turning point in the history of the "National."

Faced again by a bombardment of adverse criticism, Bradley stood firm, repulsed the purists, castigated the malcontents and defended his colleagues against all attack. The indecisiveness of the profession was overcome and the future well-being of the National Veterinary Medical Association was established.

So ended a chapter (or was it only a verse?) in one of the many histories which time will contribute to the memory of a really great member of the veterinary profession. The debt which we owe to him cannot be reckoned. We can only be grateful that he came amongst us and was one of us for a brief distance of time.

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From Professor W. M. Mitchell, Edinburgh:

The passing of Dr. Bradley must have awakened many memories among his old students by the intimate contacts which he made with them when at College.

His presence at a meeting, formal lecture or tutorial class immediately raised the tone of everything said or done, such was the dignified atmosphere he seemed to impart.

His was an orderly mind and this showed itself in his insistent regard for detail. The punctuality with which all his classes commenced and finished, the cleanliness of a dissecting room floor, the spotlessness of the white coats and other innumerable lessons on the importance of small matters had their effect on many.

A master in his own subject, failing which a teacher can never hope to gain the respect of students, Dr. Bradley had the further gift of stimulating enquiry and he was never happier than when he had awakened curiosity in some problem outside the normal routine of study.

To these common memories we must not forget the wideness of Dr. Bradley's interests in College activities. For many years before he became Principal he acted as Hon. Treasurer of the Athletic Club; as an active member of the Golf Section, which he was instrumental in forming: there must be many who can recall the happy outings on Saturday mornings on the courses around Edinburgh in which he often used to lead the field.

In his latter years music had been one of his great delights and any student with musical ability was a very welcome addition to the orchestra which met regularly in his home for practice.

The Officers' Training Corps, student societies and all social functions connected with the College, received his whole-hearted support.

The Alumnus Association, founded in 1929 and open to the staff of the College and all past students, was a link dear to his heart. He never failed to bring home to new graduates at the ceremony which followed every final examination, that all who have been students should maintain affection for their Alma Mater. This affection which the Alumnus Association sets out to foster has received its chief inspiration from his life of untiring devotion to the College over which he has ruled for the past 26 years.

I leave others to speak of Dr. Bradley's service to the profession apart from the College, but the loss which the College has sustained, though great, has left behind an example which will long continue to exert an influence, not only upon those who have known him as a teacher and friend, but upon generations of future students who will unconsciously be influenced by the traditions which he has built up during his long connection with the College.

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From Mr. A. C. Doull, Secretary of the Royal (Dick) Veterinary College, Edinburgh:

While everyone recognises the late Dr. Bradley's eminent accomplishments in the world of science, it is but right that due tribute be paid to his qualities as an administrator. As one who came into daily contact with him for over 14 years, the writer is in a position to state, without fear of contradiction, that, as an administrator, the late Dr. Bradley had few equals. A strict disciplinarian, he so used his gifts of counsel and leadership that he was, at all times, one of the most approachable of men. It can be well understood that in the government of a college, many complex problems fell to be solved by him and he brought to each that same broad-minded view which stamped him with the hallmark of genius. No problem was too trivial for him to consider and give his verdict upon, and there can be no doubt that much of the success attained by the Edinburgh Veterinary School during the past quarter of a century was mainly due to his wise guidance. On ceremonial occasions his genius for organisation and his meticulous attention to detail were reflected in the ultimate success of these functions. Much of the devotion shown to him by the administrative staff was the inevitable result of the consideration and courtesy he showed to those who served him and who deemed it an honour and privilege to carry out his instructions. The writer will be

pardoned if he emphasises one particular attribute of the late Dr. Bradley, *viz.*, punctuality. He was always in his accustomed chair by 9 a.m., and the example he thus set could not but be reflected on his administrative staff.

Much has been written and much more could be written on the late Dr. Bradley's attainments, but the administrative staff of the College have lost not only a wise and gracious "Head" but a friend whom they will ever gratefully remember.

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From Mr. H. W. Steele-Bodger, Tamworth:

Dr. Bradley is dead and his ashes sprinkled over that patch of green he loved so well.

The "Dick" College has lost a Principal who will be difficult to replace, the profession a great teacher, and the world an eminent scientist; yet I doubt if it was any of these three thoughts which was uppermost in the minds of the hundreds who attended either his memorial service or his funeral. Rather, I think, they remembered his personality—his quiet grace and dignity, his devotion to the College and all those connected with it.

The Rev. Taylor referred to him as "one who was born a gentleman and who throughout his life by his conduct remained a gentleman." Of no man could that be said with greater truth.

Those of us who graduated under him felt that, in addition to the M.R.C.V.S., we were possessors, as a result of his influence, of an intangible something of at least equal value. Having known him, the best of us was better, and the worst of us less bad.

By his passing, the profession is infinitely poorer, but by his example he has left it immeasurably richer.

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From Mr. R. Craig Robinson, Carlisle:

My first memory of the late Dr. Bradley was when he was introduced by the late Principal Williams of the New Veterinary College as lecturer and demonstrator in Junior Anatomy in the Session, 1892-93. I shall always remember the words used by the Principal on that occasion—"I am now going to introduce to you Mr. Bradley; he had a very successful College career and is a gentleman in the true sense of the word; I have every confidence in his appointment to a position of trust in this College."

From the first, Mr. Bradley as he then was, gained the confidence and respect of the new students of that session and I think it is not out of place to say that every student from that time onwards has reposed that same respect and confidence in him which we felt at the beginning of his period as a teacher and leader.

As a lecturer he was clear and distinct, always ready and willing to assist any student who was perplexed by the intricacies of his work. From the first, although so young, he showed a great grasp of his subject; to my mind his chief forte was in obtaining order and respect from his class. I well remember on one occasion shortly after his appointment three old students, contemporaries of his own, annoying other students during his lecture; he noticed their unruly conduct and named them, telling them to come down to the front row in the lecture hall. From that day until the end of the session there was never again an unruly incident in his class and he won the universal admiration and respect of his students.

I have followed with pleasure and satisfaction his career since that time, a career which was dedicated to the dignifying of expert tuition and practice in veterinary science. I have watched the surmounting of immense difficulties, and the expenditure of great labour and patience in the attaining of the great ideal upon which he had set his heart. No words of mine can express the great debt the profession and myself in particular, owe to this great man whose passing we now mourn.

I am privileged to be able to count myself a personal friend of Dr. Bradley for 45 years, during which time both of us have seen many changes in the status of the profession. No one will deny that the position the profession now holds in the public life of this country and empire is due in no small measure to the untiring effort of the late Dr. Bradley. It was the cause upon which he set his heart in his early days and I am sure he must have felt towards the end of a life dedicated to his fellow-members of the Royal College, that his efforts both as a teacher and as a prominent member of the profession had won the respect and appreciation of all.

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The following are among the innumerable tributes to the late Dr. Bradley received at the "Dick" College:

From the Secretary of the Council of the Royal Physical Society.

I am asked by the Council of the Royal Physical Society to express their profound sympathy in your recent sad bereavement.

Principal Bradley was elected a member in 1893 and served the Society faithfully as Assistant Secretary, Secretary, Councillor, Vice-President, and President, over a period of 44 years. A constant and admirable feature in his tenure of these offices was the unselfish way in which he performed his duty, sacrificing personal convenience to the welfare and progress of the Society. His communications to our meetings were notable for his precision and wealth of detail, and his intimate knowledge of biological matters marked him as one of the most outstanding members that our Society has been privileged to have.

We recall with affectionate gratitude his manifold services and shall miss the kindly counsel of a loyal friend.

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Extract from a letter from Stanley Cursiter, Esq., R.S.A. Curator of the National Gallery of Scotland.

In the few weeks during which I painted his portrait I came to know him well. He was a man of most charming and gracious character—but to me he appeared that most remarkable combination of a scientist with the precision and accuracy of the trained mind allied to the outlook and vision of a poet—a combination which found outlet in his love of flowers in a garden which he conducted on a mixed basis of science and fantasy.

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Memorial Services in Edinburgh

Memorial services for the late Dr. O. Charnock Bradley were held in Edinburgh on Wednesday of last week and were attended by a large company representative of the many professional and public institutions with which he was prominently identified.

The first service, which was held in Hope Park Church, adjoining the College, was primarily for the staff and students of the College and others who were unable to attend the later one. It was conducted by the Rev. Robert Taylor, Minister of Hope Park Church, who paid tribute to the work of Dr. Bradley.

The second service was held in the chapel of the Crematorium at Warriston, and the cortege was headed by the College janitor. The Rev. Mr. Taylor again officiated, and the chapel was filled.

The chief mourner was Mr. J. J. Bradley, Wigan, a brother of the late Principal.

In accordance with the wishes of Dr. Bradley, his ashes were scattered on the College lawn.

Public Bodies Represented

Lord Provost Sir Louis Gumley represented the Corporation of Edinburgh; Principal Sir Thomas Holland the University of Edinburgh, and Sir Thomas Hudson Beare, Chairman of Governors, the Royal (Dick) Veterinary College.

Among the other representatives present were Sir John Kelland, Chief Veterinary Officer, Ministry of Agriculture and Fisheries; Mr. W. Jackson Young, F.R.C.V.S., Superintending Inspector for Scotland; Colonel P. J. Simpson, Maidenhead, President, Royal College of Veterinary Surgeons; Mr. Donald Campbell, M.R.C.V.S., President, National Veterinary Medical Association; Professor J. Basil Buxton, M.A., F.R.C.V.S., D.V.H., Principal, Royal Veterinary College, London; Colonel J. J. M. Soutar, O.B.E., Royal Army Veterinary Corps; Professor James Ritchie, Zoological Society of Scotland; Dr. Douglas Guthrie, Royal Physical Society; Major A. Baird, D.L., M.R.C.V.S., Centenary Fellowship Trustees; Mr. W. A. M'William, Veterinary Education Committee; Mr. A. Gofton, F.R.C.V.S., Chief Veterinary Officer, Edinburgh; Professor W. Kearney, Veterinary College of Ireland; Principal J. Cameron Smail, Heriot-Watt College; Captain J. N. Ritchie, B.Sc., M.R.C.V.S., D.V.S.M., Officers' Training Corps; Major J. Gillray Macgregor and Professor Boddie, Scottish Branch of the National Veterinary Medical Association; Mr. J. M'Allan, M.A., B.Sc., the North of Ireland V.M.A., and Mr. J. R. Rider, M.R.C.V.S., the North of England Division, N.V.M.A.; Mr. Steele-Bodger, M.R.C.V.S., Tamworth, Society of Veterinary Practitioners.

The Department of Agriculture for Scotland was represented by Mr. Charles Weatherill, Mr. J. M. Caie, Mr. A. Main, and Mr. J. M. Ramsay.

Professor J. T. Mackie represented the Agricultural Research Council, and the Animal Diseases Research Association was represented by Mr. G. G. Mercer, Southfield, Dalkeith, Vice-Chairman; Mr. Alex. M'Callum, LL.B., Dr. J. Russell Greig, the Director (who also represented the Chairman, Mr. Falconer L. Wallace of Candacraig); Dr. Gordon, Dr. Stewart, Mr. A. W. Taylor, Mr. A. R. Milroy, Secretary, and Mr. A. Campbell.

The Highland and Agricultural Society was represented by Mr. J. E. B. Cowper, Gogar House, and Mr. J. Stirton, the Secretary.

The representatives of the Governing Board of the Royal (Dick) College included, in addition to the Chairman, Councillors Rutherford, Fortune and Duncan; Mr. W. Wallace Peggie, Biggar, and Mr. John Armour, Winchburgh.

Professor Sir D'Arcy Wenthworth Thompson, President, Dr. James Watt, Vice-President, Professor Sir James Kendall, General Secretary, Dr. L. Dobbin, Curator, represented the Royal Society of Edinburgh; Professor W. T. Ritchie, President, the Royal College of Physicians; Principal Shearer, the Edinburgh and East of Scotland College of Agriculture; Professor Sir William Wright Smith, the Royal Botanic Garden; Professor Sir David P. Wilkie, Professor Charles M'Neil, Sir John Sutherland, Colonel Stordy; Dr. Alexander Lauder, Dr. John Orr, Mr. John Matthew (of Messrs. Lorimer and Matthew); Mr. W. Woods, M.Sc., F.R.C.V.S., Wigan; Dr. J. E. Mackenzie, Professor T. J. Bosworth, Dr. R. Stewart MacDougall, and Dr. J. D. S. Cameron, Board of Examiners, R.C.V.S.; Mr. R. Craig Robinson, M.R.C.V.S., Carlisle; Mr. W. Nairn, M.R.C.V.S., Blairgowrie; Dr. J. R. M. Innes, Cambridge; Mr. Archibald Baird, M.R.C.V.S., Captain R. Simpson, F.R.C.V.S., Colonel Thomas Matson, D.S.O., M.B., Ch.B., B.V.Sc., D.V.S.M., Messrs. W. J. B. Robson, M.R.C.V.S., D.V.S.M., Laurencekirk; John Kerr, M.R.C.V.S., Peebles; E. G. Wood, M.R.C.V.S., Edinburgh; A. M. Larnach, M.R.C.V.S., Musselburgh; N. W. Keith, M.R.C.V.S., Duns; J. B. Mackie, M.R.C.V.S., Kirkliston; G. R. Jamieson, M.R.C.V.S., Haddington; Dr. J. S. A. Spreull, Ph.D., M.R.C.V.S., Dundee; H. McI. Wilson, M.R.C.V.S., Cupar; Major T. Hodgins, R.A.V.C., Messrs. E. M. Mackay, M.R.C.V.S., D.V.S.M., Edinburgh; W. D. Macrae, M.R.C.V.S., D.V.S.M., Edinburgh; W. A. Ireland, M.R.C.V.S., Edinburgh; R. A. S. Macdonald, B.Sc., M.R.C.V.S., N. Rhodesia; E. J. H. Sewell, M.R.C.V.S., Edinburgh; T. P. Young, M.R.C.V.S., Leith; Wm. Watt, M.R.C.V.S., D.V.S.M., London; Thomas Bannatyne, M.R.C.V.S., D.V.S.M., London; R. B. H. Murray, M.R.C.V.S., D.V.S.M., D.T.V.M., Uganda; David Sharpe, W.S., Edinburgh; A. N. Wilson, B.Sc., Edinburgh; Mr. George Ferguson, representing the Warrender Swimming Club; Emeritus-Professor G. H. Gemmell, Mr. W. G. Beaton, Nigeria.

The Royal (Dick) College staff was represented by Professors Linton, Matheson, Mitchell, Dryerre, and Thin, Major Tom Grahame, Dr. Morgan, J. E. Wilson, and C. B. Davidson; Mr. A. C. Doull, Secretary and Treasurer, and Mr. R. Selcraig

Murray, the late Principal's Secretary, and Messrs. Walker and Kerr, employees at Gifford. There were also present representatives of all the student bodies and the Officers' Training Corps and representatives of the Scottish Society for the Prevention of Cruelty to Animals, of which the Principal was a member of Council.

Many floral tributes were sent and these were later placed on the lawn at the College.

IN PARLIAMENT

The following questions and answers were recorded in the House of Commons recently:—

Foot-and-Mouth Disease Research

Mr. Noel-Baker asked the Minister of Agriculture whether, in view of the fact that the payments made by His Majesty's Government for compensation for animals slaughtered on account of foot-and-mouth disease amounted, during the years 1917 to 1936, to £4,900,223, and of the further fact that the total expenditure upon research into the causation, prevention and cure of foot-and-mouth disease during the financial year ended March 31st, 1937, was £16,591, he will propose that the expenditure upon this research should be increased?

Mr. W. S. Morrison: This research is under the direction of a committee of distinguished experts in veterinary and human medicine, which frames the annual estimates of expenditure, and I have no reason to think that the committee has at any time considered its work hampered by reason of lack of funds.

Mr. De la Bere asked the Minister of Agriculture whether, in view of the continued outbreaks of foot-and-mouth disease, the Government research department will consider the possibility of the disease being caused by the introduction into this country of imported cabbages and cauliflowers from the Continent, the outside leaves of which are torn off and fed to cattle, and the residue of which finds its way to the garbage pails from hotels and restaurants and is fed to pigs?

Mr. W. S. Morrison: Investigations on the spot into the sources of outbreaks of foot-and-mouth disease include inquiries as to the presence of any imported foodstuffs. There is no evidence that imported cabbages or cauliflowers have been associated in either of the ways suggested with any of the infected premises in the present series of outbreaks. Swill is required to be boiled for one hour before being fed to animals, and it is significant that in none of the recent outbreaks have pigs been the animals primarily affected.

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Cattle Herds (Tuberculosis)

Mr. W. Roberts asked the Minister of Agriculture whether, in order to secure the eradication of tuberculosis, he proposes to make payments under the Agriculture Act, 1937, in respect of breeding herds not engaged in the production of liquid milk for sale; and, if so, whether he can now state what scale of payments is proposed?

Mr. W. S. Morrison: When Part IV of the Agriculture Act, 1937, comes into operation, which will not be earlier than April 1st, 1938, it is proposed to extend the present Attested Herds Schemes to enable payments to be made, on a scale yet to be determined, in respect of herds maintained primarily for beef production.

Milk (Producers' Licences)

Brigadier-General Clifton Brown asked the Minister of Agriculture the total number of licences issued to producers of milk, and the number of these licences issued to owners of attested herds, tuberculin-tested herds, and accredited herds, respectively?

Mr. W. S. Morrison: As the reply contains a number of figures, I will, with my hon. and gallant Friend's permission, circulate it in the Official Report.

Following is the reply:—

Number of producers registered under the Milk Marketing Scheme	146,898
Number of registered producers whose herds are attested	540
Number of registered producers who hold licences to sell tuberculin tested milk	1,927
Number of registered producers who hold licences to sell accredited milk	21,023

These figures relate to England and Wales only, and give the position as at October 31st, 1937.

. . . . . .

Led Horses

Mr. De la Bere asked the Minister of Transport whether steps can be taken to ensure that persons leading horses in the dark should wear on their belts or in some other conspicuous place a reflex light, similar to that used by cyclists, in order to prevent motorists from running into these horses which are often almost invisible?

The Minister of Transport (Mr. Burgin): I have no power to impose such a requirement.

Mr. De la Bere: Will my right hon. Friend take powers?

. . . . . .

Abattoir, Lahore

Sir Nairne Stewart Sandeman asked the Under-Secretary of State for India why the scheme for the construction of an abattoir at Lahore has been abandoned; and what, if any, is the actual monetary loss resulting from the abandonment?

The Under-Secretary of State for India (Lord Stanley): Before reaching any decision as to the construction of the abattoir or the acceptance of the scheme, the Government of India had taken great care to make sure that there was no risk of its giving any offence to religious susceptibilities. They had received formal assurance to that effect from the Government of the Punjab who, before giving that assurance, had themselves made careful inquiries from representative Hindus. It was solely in the confidence that no such offence was involved, that the Government of India decided to proceed with this scheme, which had great possibilities of economic and other advantages. Subsequently, however, it became clear that, for whatever reason, apprehensions had been aroused that an offence to religious susceptibilities would be involved in proceeding with the scheme. In these circumstances the Government of India did not feel justified in proceeding further with it. The latest estimate of the probable losses involved which I have received from the Government of India is from Rs. 10 lakhs to Rs. 16 lakhs, to which must be added the still undefined liabilities of Government under the cold storage project.

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Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Dec. 6th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

Dec. 7th.—R.C.V.S. Oral and Practical Examinations begin in Dublin.

Dec. 7th.—Annual General Meeting of the Dumfries and Galloway Division, N.V.M.A., at Dumfries, 12 noon.

Dec. 8th.—Meeting of the West of Scotland Division, N.V.M.A., at Glasgow, 4 p.m.

Dec. 11th.—Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne, 3 p.m.

Aug. 21st-25th, 1938.—Thirteenth International Veterinary Congress, Zurich.

Aug. 26th-27th, 1938.—Thirteenth International Veterinary Congress, Interlaken.

Sept. 5th-9th, 1938.—Annual Congress, N.V.M.A., at Glasgow.

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CENTRALISED VETERINARY SERVICE

Members of the Consultative Committee of the N.V.M.A. attended at 7, Whitehall Place, S.W.1, on Monday, November 29th, and discussed with representatives of the Ministry of Agriculture proposals for the transfer of the whole-time staffs of local authorities, and, in particular, the conditions to be applied in the case of veterinary officers employed by borough councils and municipal corporations.

It is understood that a letter will shortly be issued to local authorities outlining the procedure which will be adopted in the selection and appointment of veterinary officers from the local services, and inviting applications from these officers for appointment to posts in the new service.

It is not possible, at present, to make more than this preliminary announcement, but it is hoped that a fuller statement will be available for publication in the next issue of the *Veterinary Record*.

* * * * *

R.C.V.S. OBITUARY

Fleury, John Joseph, Ashgrove, Kill Road, Kill o' the Grange, Co. Dublin. Graduated Dublin, July 15th, 1905. Died November 16th, 1937; aged 55 years.

Northcott, Charles Stanley, Major late R.A.V.C. Graduated London, July 11th, 1917. Died November 23rd, 1937; aged 43 years.

GENERAL OBITUARY

Mr. Frederick Hunting

It is with deep regret that we record the death, at the age of 62 years, of Mr. Frederick Hunting, elder son of the late Mr. William Hunting, the revered founder of the *Veterinary Record*, which took place on Monday last after a long illness, at his home 13, King's Court Mansions, Fulham, S.W. Mr. Frederick Hunting, unlike his younger brother, who qualified M.R.C.V.S., had purely a family association with the veterinary world, but as recently as last month he placed the N.V.M.A. deeply in his debt by presenting it with the fine portrait, in oils, of his father, which now fittingly adorns the editorial offices of this journal.

The sad event we now announce removes the last of William Hunting's three children. Miss Louisa Hunting, it will be recalled, passed away in June of this year—her younger brother, Mr. W. H. Hunting, died in 1901, aged 29—having, after Mrs. Hunting's death, devotedly taken her place as her father's constant and well-loved companion.

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VICTORIA VETERINARY BENEVOLENT FUND

The Secretary of the Victoria Veterinary Benevolent Fund gratefully acknowledges the receipt of a donation of £3 from the Royal (Dick) Veterinary College Alumnus Association, sent in memory of Dr. Bradley *in lieu* of flowers. Dr. Bradley had been a Vice-President of the Fund for many years.

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DIPLOMA IN VETERINARY STATE MEDICINE

On the results of the examination held by the Royal College of Veterinary Surgeons in Edinburgh, from November 22nd to 23rd, the following candidates have been awarded the Diploma in Veterinary State Medicine: Mr. Alexander McLeod King McLeod, M.R.C.V.S., County Veterinary Officer, Renfrew, Mr. Louis Francis Robertson, M.R.C.V.S., of Edinburgh.

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FOOT-AND-MOUTH DISEASE

On Saturday of last week Ministry of Agriculture officials confirmed a case of foot-and-mouth disease at Forest Lodge, Stock, near Chelmsford. A further outbreak has been confirmed near Chester. The Ministry's standstill order as the result of an outbreak at Latimer, Bucks, has affected the Royal farm at Windsor, and stopped the dispatch of animals to fat stock shows for the time being.

Concerning the reference to Smithfield Show precautions appearing on p. 1529 of our last issue, Captain W. J. Leyshon, M.R.C.V.S., of the London County Council Public Health Department writes: "Regulations permit removal from the Show only direct to a slaughterhouse in the controlled or an infected area. It is, therefore, not strictly true to say that animals at the end of the Show will have to be slaughtered in London. Another small point is that although the Ministry permit the holding of the Show, it is necessary for the local authority (L.C.C.) to authorise it, as has been done."

In view of misinformed criticism of the Government for "playing a lone hand" in this matter, it cannot be too widely known in this country that the slaughter policy, as the wisest means of dealing with foot-and-mouth disease, is adopted also in the United States, Norway and Switzerland, and that latterly Denmark has decided to follow the same method. Of particular significance is the fact that while Germany has been developing a serum treatment for affected stock, the British Research Committee reported in February last that the Germans had expressed the hope that if they could lower the level of incidence of the disease in Germany it might become feasible for them to adopt, even temporarily, the slaughtering out policy in order to rid the country of the trouble, as it was thought that Great Britain's method "would be less expensive and irksome than inoculation and isolation."

. . . . . .

Ringed starlings from the Continent are now being examined at the Government's Foot-and-Mouth Disease Research Station, at Pirbright, with a view to testing the theory that the recent outbreaks in the eastern counties have been caused by infection carried by migrant birds.

. . . . . .

Active measures are being taken by the Palestine Department of Agriculture to localise an outbreak of foot-and-mouth disease among cattle in the Holy Land. At present the epidemic is confined to a number of herds in the vicinity of Beisan, a large market town in the valley of the Jordan river. Shepherds are advised not to allow strange kine to mingle with their own healthy stock.—*Reuter.*

* * * * *

R.C.V.S. CENTRAL LIBRARY FOR ANIMAL DISEASES

Recent additions to the Library include the following:—

Books, lengthy bulletins, etc.

Buchanan Smith, A. D., and Others. Genetics of the Pig. 1936.

Colyer, Sir F. Variations and Diseases of the Teeth of Animals. 1936.

Curasson, G. Traité de Pathologie Exotique Vétérinaire et Comparée. 3 vols. 1936.

Dixey, R. N. Tuberculin-tested Milk: A Study of Reorganisation for its Production. 1937. (Agricultural Economics Research Institute, Oxford.)

Lapage, G. Nematodes Parasitic in Animals. 1937.

Malkmus. Clinical Diagnosis of the Internal Diseases of Domestic Animals. Eleventh edition. 1937.

Medical Research Council (Special Report). Use of the Developing Egg in Virus Research. 1936.

Milks, H. J. Practical Veterinary Pharmacology, Materia Medica, and Therapeutics. Third edition. 1937.

Ministry of Agriculture. Fertility and Animal Breeding. 1937.

Ministry of Agriculture. Scientific Principles of Poultry Feeding. 1936.

Ministry of Health. Laboratory Diagnosis of Psittacosis. 1937.

National Institute for Research in Dairying and Rowett Research Institute. Milk and Nutrition. Part I. 1937. (Report of the Milk Nutrition Committee.)

Udall, D. H. The Practice of Veterinary Medicine. Second edition. 1936.

Wells, H. G., Huxley, J., and Wells, G. P. How Animals Behave. 1937.

Wright, Samson. Applied Physiology. Sixth edition. 1937.

Pamphlet.

Waterston, J. Fleas as a Menace to Man and Animals. 1936.

Reports.

Ministry of Agriculture. Fifth Progress Report of the Foot-and-Mouth Disease Research Committee. 1937.

Royal Agricultural Society. Farmers' Guide to Agricultural Research in 1936.

Irish Free State. Fifth Annual Report of the Ministry of Agriculture, 1935-36.

Canada. Department of Agriculture. Report of the Veterinary Director-General for 1935-36.

Council of Scientific and Industrial Research (Australia). Ten Years of Progress, 1926-36.

Agriculture and Animal Husbandry in India, 1933-34 and 1934-35.

Muktesar. Imperial Institute of Veterinary Research. Annual Report, 1935-36.

Bureau of Animal Industry (U.S.). Report of the Chief for 1935-36.

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ARMY APPOINTMENTS IN INDIA

The Commander-in-Chief in India has made the following appointments, with effect from the dates shown:—

Major F. B. Hayes, O.B.E., as D.A.D.V.S., Madras District, October 4th.

Major V. A. Bartrum, O.B.E., as D.A.D.V.S., Deccan District, August 7th.

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LEGAL NOTES

"Hot-bed of Sheep Scab."—Prosecuting at Carlisle recently, Superintendent Stewart described the farm of Ernest Jackson Soulsby, of Orchard House, Great Corby, North Cumberland, as "a hot-bed of sheep scab." Soulsby was summoned for failing to give notice that he had in his possession on October 24th a sheep which was suffering from scab.

Mr. John Reid, Assistant Veterinary Officer to the Cumberland County Council, stated that it must have been apparent that the animal had been suffering from the disease for at least two months.

Soulsby, giving evidence, said he had between 500 and 600 sheep a year and had never previously had a case of scab. Questioned by Superintendent Stewart, he said he had now 20 more sheep on his farm suffering from the disease. Two lots of sheep which he had sold had been found to be suffering from it.

Soulsby was fined £5 and ordered to pay £2 2s. 9d. costs.

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THE AGRICULTURE BILL AND THE QUESTION OF COMPENSATION

For some time prior to the introduction of the Agriculture Bill into the House of Commons, efforts were being made by the National Association of Local Government Officers to obtain the inclusion of provisions for the protection of officers of local authorities who might be affected by the contemplated establishment of a central veterinary service. In the course of an article dealing with this matter, appearing in the October issue of the official journal of the Association, the following passages occur: "The view of the Ministry was that all whole-time veterinary inspectors should be offered appointments by the department, and that it was, therefore, unnecessary to include compensation provisions. The Association pointed out that there would be members of the staffs of local authorities employing veterinary inspectors who would not be transferred, or who would have their duties diminished in consequence of the transfer of functions to a central department. It should be noted that the Ministry had previously

declared their intention not to transfer any person other than a whole-time veterinary inspector.

"Under the Standing Orders of the House of Commons, any motion for a grant or charge upon the public revenue, whether payable out of the consolidated fund or out of money to be provided by Parliament, cannot be dealt with unless recommended from the Crown. This resolution, as passed by the House of Commons on June 29th, is headed "King's recommendation signified." On June 22nd, notice of the Money Resolution relative to the contemplated Bill appeared for the first time in the Parliamentary papers. This resolution was considered in committee of the House of Commons and passed by the committee as stated on June 29th, and reported to the House and agreed to on the following day, when the Bill was ordered to be brought in.

"In so far as an amendment, *e.g.*, for the payment of compensation, would have involved an extension of the charge authorised by the Money Resolution, such amendment would clearly be outside the Standing Orders, as the King's recommendation would not have been signified. Such recommendation is, of course, made on the advice of the Government. There was, therefore, first the technical difficulty that the Money Resolution did not specifically refer to compensation, and secondly, the fact that the Ministry would not agree to any such provision.

"Paragraph 14 of the Resolution was to the effect that it is expedient 'to make provision for purposes connected with the matters aforesaid,' and it was hoped that if as a result of representations made to the Ministry they would be prepared to agree to a compensation clause, paragraph 14 might meet the point, or that some supplementary provision might be made. The Bill was circulated on July 1st. Clause 18 provided for the discharge of certain functions of veterinary inspectors in England, and veterinary officers in Scotland, by inspectors to be appointed by the Minister, and clause 25 made some provisions with regard to superannuation rights of veterinary inspectors.

"A compensation clause was at once prepared, together with some amendments which were required in clause 25, which were submitted formally to the Ministry on July 2nd. At the instance of Sir Francis Fremantle, the matter was taken up with Mr. R. H. Turton, M.P., who arranged to move the clause and amendments when the Bill was in committee of the Whole House. The clause stood on the Paper in the names of Mr. Turton, Mr. Maxwell, Sir Francis Fremantle and Mr. Foot.

"A letter was subsequently received from the Ministry in which it was stated: 'I have now had an opportunity of discussing the principle of your proposed amendments with the Minister, and, as I indicated to you when you were kind enough to come and discuss the matter with Mr. Toye and myself, there is no chance of the Minister being prepared to accept these amendments. He feels that, in view of his assurance that it is proposed to invite all whole-time veterinary officers of local authorities to accept appointments under the Ministry, subject of course to the conditions which normally attach to the State Veterinary Service, the question of compensation does not arise.'

"Conferences took place with Mr. Turton and Mr. Foot. An amendment proposed by Mr. Ammon on clause 18 in committee on July 12th, afforded Mr. Turton an opportunity of raising the question with regard to compensation, and he was supported by Mr. Foot. The deputy chairman (Captain Bourne) pointed out that the committee were dealing with a Bill founded on a resolution, and that in the terms of the resolution there was no provision whatever for compensation. 'If it was desired to raise this point it ought to have been raised on the resolution. The matter could not be dealt with under this Bill in any circumstances.' As above mentioned, the matter could not, in fact, have been effectively raised on the resolution, as there was no possibility of extending the scope of the Money Resolution on technical grounds, apart from the opposition of the Government. It was held that paragraph 14 of the resolution would only cover minor incidental matters, and would not cover provision for compensation.

"The principle involved in the difficulty which has arisen in the case of the Agriculture Bill has, in fact, formed the subject of consideration by a Select Committee of the House of Commons on Procedure Relating to Money Resolutions. The report of the committee was presented to the House on July 13th. The report refers to the 'grievance which lies in the fact that under the present practice it is impossible to modify the financial provisions of the Bill otherwise than restrictively at the committee stage,' and recommendations are made by the committee with a view to remedying this grievance, at all events to some extent. It is suggested, among other things, that a resolution might be passed by the House of Commons providing, amongst other matters, that 'any detailed provisions which define or limit the objects and conditions of expenditure contained in a Bill should, in and so far as they are set out in a Financial Resolution, be expressed in wider terms than in the Bill, so as to permit amendments to the Bill, which have for their object the extension or relaxation of such provisions, and which do not materially increase the charge.'

"It is also suggested that the Financial Resolutions should be taken after the second readings of the Bills of which the primary purpose is the expenditure of public money. This procedure would afford an opportunity for a full consideration of the provisions of a Bill and of representations being made to the appropriate Government Department with regard to the insertion of any necessary protective provisions in the Bill, before any discussion on the Financial Resolution, and, if the Government were prepared to accept any such provisions, for the framing of the Money Resolution in such a manner as to cover them.

"It will be seen that the Association took every possible step to obtain compensation provisions for every officer who might directly or indirectly be affected by the passing of the Agriculture Bill, and it is to be deplored that the Ministry were not prepared to accede to our request despite the intense pressure which was brought to bear. It is all the more regrettable that the efforts of the Association were frustrated by what can only be regarded as effete Parliamentary procedure.

. . . . .

"Abuses of the Standing Order Unlikely in Future"

Early in November the Premier addressed the House on the report of the Select Committee to which reference is made above, and we reproduce the illuminating comment thereupon made by *Time and Tide* in its issue of November 13th under the heading, "A Victory for Private Members":—

"The declaration of Government policy with regard to financial resolutions to Bills before the House, hastily read by Mr. Chamberlain on Tuesday, marks an important victory over encroaching Cabinet power by the ordinary Members of the House. The intelligent mind of some civil servant had seized on the Standing Order of the House which prevents any initiation of expenditure other than by the Government, to evolve an ingenious way by which the House might be prevented from moving awkward amendments which the Cabinet did not wish to incur the odium of refusing, by getting the money resolution, to which Members were not allowed to move amendments, passed first. This automatically prevented the House from moving amendments to the main Bill in any way which, by improving the Measure, increased expenditure. Members in all parts of the House resented what really amounted to sharp Parliamentary practice, and after protests from the Opposition a Select Committee on Procedure was asked to report.

"While not accepting their full report, the Premier's declaration does make abuses of the Standing Order unlikely in future except in some special emergency. It is evident from the personal memorandum read by the speaker himself that the whole weight of the chair had been thrown into the scales on the side of the rights of the private Member. The speaker's declaration was read to a House hushed to absolute quiet. The ghosts of the "Five Members" and other fighters for Parliamentary rights against the executive power of the day seemed present in that silence."

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WINTER LIVESTOCK CENSUS

In each of the past four years, except 1934, the Ministry of Agriculture and Fisheries has taken a special census, on a voluntary basis, of the livestock on farms in England and Wales at the beginning of December. This enquiry is being repeated this year, and by the end of the week farmers will have received forms, with a request that they shall be completed and returned to the Ministry. A similar enquiry is being undertaken in Scotland.

In past enquiries every occupier of an agricultural holding who made a return in June has been asked for information. On this occasion the Ministry has decided to omit holdings of five acres and under, except holdings where a considerable number of poultry were returned in June last. The particulars regarding the omitted holdings will be estimated on the basis of the completed returns, and no significant error should arise through the omission.

The Ministry attaches great importance to these special enquiries held between one June 4th and the next. The information derived from them, forms the basis of estimates of future supplies of beef, mutton and pigmeat, and the circumstances of recent years have increased the need for reliable estimates of this kind.

In addition to the questions relating to cattle, sheep and pigs that have been asked in previous years, the Ministry is this year asking for particulars of the number of fowls on farms. This additional information will throw light upon the seasonal changes in the numbers of fowls.

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CANCER RESEARCH

Lord Horder, submitting the annual report at the annual meeting of the British Empire Cancer Campaign held on Tuesday last, said that they were pursuing schemes of research spread over a very wide area. He wished particularly to draw attention to the work carried out by Dr. Alexander Haddow at the Royal Cancer Hospital and to the investigations by Professor W. E. Curtis and Dr. F. Dickens at the North of England Branch of the Campaign. From Dr. Haddow's work it appeared that the application to animals of very minute doses of certain cancer-producing chemicals would actually cause a definite regression, and in some cases a complete disappearance, of tumours present in the animals. Such a phenomenon was not uncommon in medicine. When taken in small doses a good many substances acted as remedies, though if taken in large doses they gave far from beneficial results.

The work being carried out in the North of England was equally suggestive. In spite of the unceasing search for new forms of treatment, surgery and the use of X-rays and radium still remained the principal methods available. Every line of research which gave promise of supplementing these standard treatments received full and careful consideration by the Campaign. An important recent development of this kind was an inquiry now being carried out in Newcastle into the action of ultra-short wireless waves.

The present results of the investigation had demonstrated that the curative effect of these waves in the experimental treatment of cancer was brought about by the heat which they generated within the tissues. This heating was of a very special character, for it could be localised and controlled with an accuracy quite impossible before the application of the newer methods resulting from modern wireless technique. Recent research had enabled the temperature to be raised within the tumour to any desired level, and to be kept there as long as was desired. Thus one of the older weapons used against cancer—the actual cautery—was now being revived, but in a form incomparably less drastic and more refined, and in fact based on quite different principles, for it aimed at the application of the mildest degree of warming over a prolonged period. In experimental studies of this method a high proportion of cures had been secured in the treatment of animal tumours. It was found that, as with radium therapy, very careful control of dosage was necessary. As with radium, great differences were found to exist in the susceptibility of different tissues to controlled heating.

Another aspect of their work begun last year—clinical cancer research—had now reached the stage when the schemes formulated by the various committees had received an assurance of adequate financial help from the campaign. He thought they might look forward to an important contribution to their work in the future through clinical research. They would be dealing with investigations, in London alone, into more than 17,000 fresh cases of cancer each year.

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The Editor acknowledges, with thanks, the receipt of the following:—

Communication from Mr. F. T. Harvey (St. Columb).

Reports of the Annual General Meeting of the Scottish Branch, N.V.M.A., from Professor Boddie, Hon. Secretary, and of meetings of the following Divisions, N.V.M.A., from their respective Hon. Secretaries: Derbyshire, Eastern Counties, Lancashire, and Mid-West.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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ACAPRIN AND PREMUNITION IN PIROPLASMOSIS

To the Editor of the Veterinary Record

Sir,—The *Veterinary Record* of October 16th contains a short abstract of an article by J. Legg on "The Treatment of Piroplasmosis with Acaprin." The drug (acaprin) administered intravenously to splenectomised calves experimentally infected with piroplasms resulted in the complete disappearance of the piroplasms, loss of infectivity of the blood, and no immunity to subsequent reinfection.

To-day many cases of red-water receive a dose of acaprin subcutaneously and no other treatment. In a variable number of hours (15 to 30 perhaps) the urine clears and all appears well. Are these cases which clear so quickly premunised? Up to a few years ago it was rather rare to see a bullock with a second attack of clinical red-water but, since the use of acaprin has become general, recurrences appear to have become more frequent. (Recently, three were reported here in one day.) Such cases, however, are generally of a mild type and, so far, no mortality has been recorded. It would be interesting to know if such an experience is in any way general.

Why should splenectomy increase the sterilising or killing power of acaprin on the piroplasms? The operation involves the loss to the animal of the largest single aggregation of reticulo-endothelial tissues to be found in the body and as the destruction of protozoal parasites can only be accomplished naturally by cells of the reticulo-endothelial type it might be supposed that the absence of the spleen would detract from rather than add to the efficiency of the acaprin as Legg's experiments would seem to suggest. May the spleen in any way shelter some of the piroplasms from acaprin attack during the period of its optimum action, a sufficient number thus surviving to establish premunition? According to Barcroft, certain areas in the spleen pulp may at times be outside the general circulation—or short circuited, so to speak—and if this should happen at the time the acaprin is injected the piroplasms sheltering therein would escape the full effects of the drug. It seems, however, that sterilisation with failure of premunition may take place under natural conditions when acaprin has been promptly administered in clinical red-water, and thus explain the more frequent recurrences seen to-day. Such efficiency in a drug is remarkable.

Yours faithfully,

F. T. Harvey, F.R.C.V.S.

St. Columb,
Cornwall.

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REPORT OF THE SPECIAL COMMITTEE, N.V.M.A., ON SMALL-ANIMAL EUTHANASIA

To the Editor of the Veterinary Record

Sir,—During the 40 years that have passed since my veterinary studies began I have sometimes regretted my choice of a calling that seemed to yield such relatively poor social and financial fruit in proportion to the labour and cost of cultivation. But there have also been moments when pride in the achievement of my colleagues in the scientific and humanitarian field has made me sure that my choice was predestined and wholly right. Such a moment happened when laying down—after reading and re-reading—the report of the Special Committee on Small-Animal Euthanasia. Only my profession could have produced such an admirable work of that kind and only my countrymen could have brought it to such a perfect fulfilment. This unselfish and sustained effort by so many eminent representatives of our profession in England, Scotland, Wales and Ireland, makes veterinary and national history. It is an epic of British—and Irish—idealism, a shining symbol of the unity that is our strength, a spiritual bond no dissension can sever nor statute separate.

There is nothing of importance lacking in this report: it says all that need, or usefully could, be said on the matter, with a clarity and truth which leave no room for misunderstanding. If we, as a profession, had done nothing more than this in recent years we should nevertheless have justified our professional existence at the bar of scientific humanitarianism. A standard has been set for the present to emulate and the future to maintain, if it can.

In the field of euthanasia as it affects domesticated animals things are coming right, thanks mainly to ourselves. Your efforts at home have their repercussions abroad, and the over-seas traveller almost everywhere finds improvement in this respect. In South Africa, for instance, our colleague, Mr. W. E. Footner, has succeeded in getting his excellent electrical apparatus for the humane killing of cattle installed at Durban and Bloemfontein, and his electrical device for destroying dogs is being largely and most beneficially used.

Australia, where the detestable anachronism of "pithing" is still common, lags behind, and our Australian colleagues would do well to be more bold in following the lead of Britain and South Africa in the humane slaughter of animals. The "Pommy" is well ahead of them there. But in the killing of poultry, Australia, where most birds are decapitated, is ahead of Britain, where the disgusting method of thrusting a knife down the throat still obtains in many rural areas. These differences well illustrate that not cruelty but carelessness, not inhumanity but custom, not a lack of consideration but of rationalism, are the last remaining obstacles to a universal euthanasia of domesticated animals.

I would conclude, Sir, by offering my warm thanks, and the thanks of many of my friends, to the members and especially to the Chairman, Major Dunkin, of the Special Committee for the great work that they have done for us, for the community, and for the animals we love. It is a work that will live and redound to their and our professional credit and to our credit as men, long after more utilitarian and remunerative achievements have been forgotten.

I am, Sir,

Yours faithfully,

Wakefield Rainey.

c/o Union Bank of Australia,
Perth,
Western Australia.
October 12th, 1937.

USE OF CHLORAL HYDRATE AS AN ANAESTHETIC, ETC.

To the Editor of the Veterinary Record

Sir,—I wish to contribute to the correspondence on chloral hydrate which was initiated by Mr. Chambers. The military stud here consists of 150 horses and a similar number of camels and as I have used no anaesthetic other than chloral hydrate intravenously administered for ponies and camels during the last two-and-a-half years, I trust that this experience may be of interest.

The prescription which I used formerly was:

Chloral hydrate 70 grammes=ʒii ʒii
Water 100 ml. (c.c.) =ʒiiiss.

I experienced occasional phlebitis, and actually had one fatal case, but since adding sodium citrate to make a final dilution of 1 per cent., no phlebitis has occurred.

When 5 ml. (c.c.) of this citrated chloral hydrate was inoculated into the subcutis of the neck of a sheep no visible local reaction was observed.

For ponies weighing about 800 lb., and light-weight riding camels, the following dosage is found to be correct:

Soporific: *Ponies.*—25 ml. (c.c.)=ʒvii. (This dosage is difficult to attain.)
Narcotic: *Ponies.*—35 ml. (c.c.) =ʒi ʒii.
Anaesthetic: *Ponies.*—45-50 ml. (c.c.)=ʒi ʒv to ʒi ʒvi. *Camels.*—50 ml. (c.c.)=ʒi ʒvi.

Milks in his "Veterinary Pharmacology, Materia Medica and Therapeutics," third edition, p. 154, gives the lethal dose of chloral hydrate in the horse as 150-180 ml. On the other hand, Leese, in his supplement to "A Treatise on the One-Humped Camel," cites Rabagliati as reporting fatal cases with one-and-a-half ounces in a small camel, and two ounces in a large one, when given intravenously in three or four pints of cold water.

Chloral hydrate is taken from the stomach as choral hydrate, and circulates unchanged in the blood (Milks). It therefore seems sensible to inject a known amount of the drug directly into the blood stream, and so obtain a fairly constant response in the animal.

Anent the matter of liver damage due to chloral hydrate, the following further quotation from Milks is not without interest:—

> "*Metabolism.*—The prolonged use of the drug leads to increased proteid destruction and lessened oxidation and causes fatty degeneration of the internal organs, but this in much less degree than with chloroform. Hopkins (1911), in studies upon metabolism, gave dogs as much as 1·5 gm. per kilo as the daily dose, enough to produce profound narcosis and anaesthesia. He found no areas of necrosis and only occasional very slight fatty changes in the liver of the type produced by chloroform, and no changes at all in the kidneys."

Intravenous citrated chloral hydrate appears to be the ideal restraint and anaesthetic for equine practitioners who work single handed.

Referring briefly to the statement on page 1329, vol. 29, of the *Veterinary Record* that, "There is as yet no drug which can be considered a really reliable treatment for colic," surely, short of a specific, chloral hydrate (which is not mentioned in paragraphs on treatment of colic) comes close to being a "really reliable treatment."

I am, Sir,
Yours faithfully,
Edward F. Peck.

Veterinary and Agricultural Officer.
Veterinary and Agricultural Department,
Burao,
British Somaliland.
November 3rd, 1937.

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"CHEMOTHERAPY FOR VIRUS INFECTIONS"

To the Editor of the Veterinary Record

Sir,—I was very interested in the short report which appeared recently in the *Record* on the investigation of the action of "Prontosil" on virus infection. I reported, in the *Veterinary Journal* (March or April, 1924) on the treatment of foot-and-mouth disease in Hong Kong by trypan blue. The results, though not in any way specific, were successful, and were later confirmed by two investigators in India, who improved on them by using "trypnin." The points leading up to its use are as follows:—

I was treating sporadic cases of piroplasmosis following rinderpest vaccination, and examining blood smears before and after the injections to observe the rate of disappearance of the disease with varying doses, and at the same time I was dealing with an outbreak of foot-and-mouth disease. A few weeks before I had returned from working at the Pasteur Institutes of French Indo-China, the veterinary surgeons in charge being Dr. Le Louet, at Saigon, and Dr. Henri Schein, at Nha-Trang. The latter was then carrying out experiments to prove that the virus of foot-and-mouth disease was located in the corpuscles and not in the serum. Therefore, noting the rapid intra-corpuscular action of trypan blue in cases of piroplasmosis, I decided to use it for foot-and-mouth with the results detailed in the journal mentioned above, and had I not left China, intended experimenting further with the aniline dye group.

I have mentioned cases of piroplasmosis appearing after rinderpest sero-virus vaccination, the records of the herd, previous to my appointment, often showing serious outbreaks, but in these, and my own cases, I was never sure whether they were due to resuscitation of latent disease or the inoculation of the Piroplasms through the blood used as the virus and collected from "carrier" native cattle. The prevention of "tick" infestation of the herd was almost perfect. However, I adopted the method of passing the virus through a goat as a filter against piroplasmosis, but the most striking result was the improvement in vaccination made possible by using goat virus, and I believe that actual vaccines from this origin are now in common use.

Yours faithfuly,
Francis A. Davidson.

Public Health (Veterinary) Department,
County Buildings,
Stafford.
November 29th, 1937.